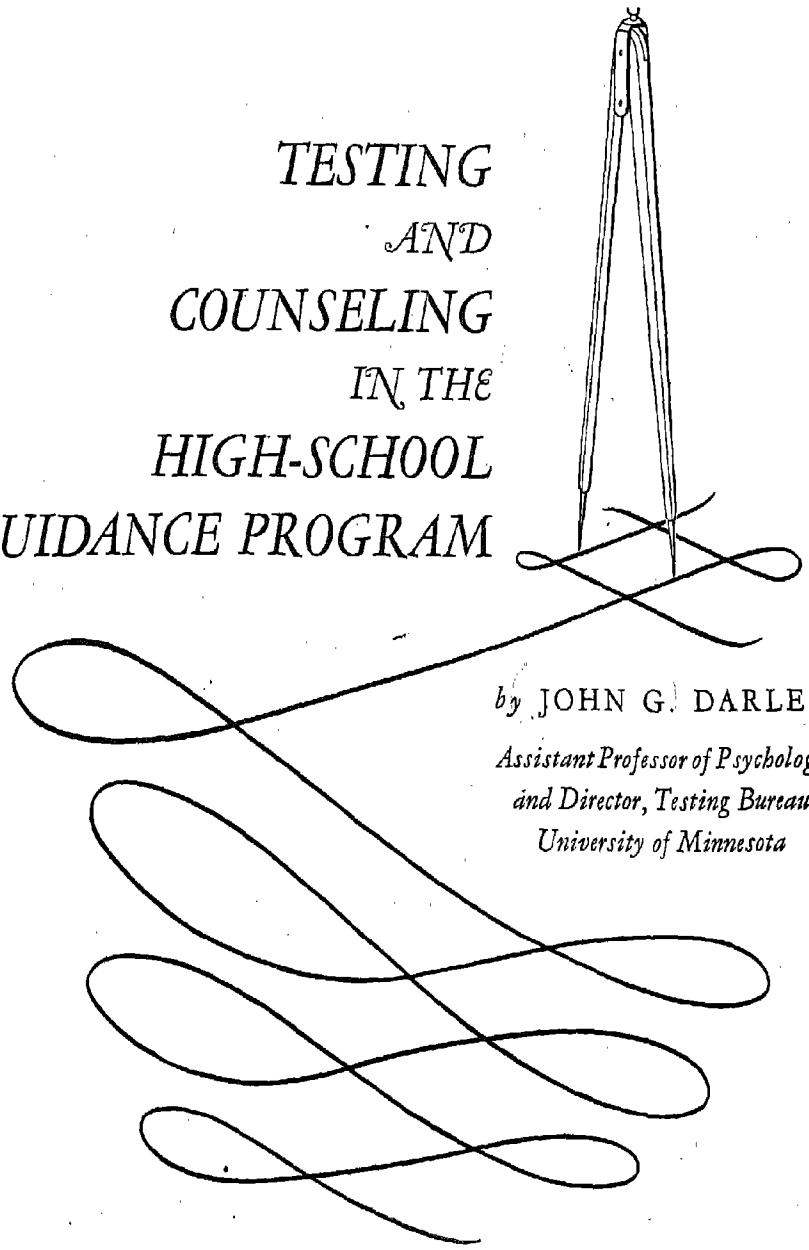
TESTING AND COUNSELING IN THE HIGH-SCHOOL GUIDANCE PROGRAM

TESTING AND COUNSELING IN THE HIGH-SCHOOL GUIDANCE PROGRAM



by JOHN G. DARLEY

Assistant Professor of Psychology and Director, Testing Bureau
University of Minnesota

SCIENCE RESEARCH ASSOCIATES
Chicago 1945 Atlanta

SECOND PRINTING

PRINTED BY LETTERPRESS IN
THE UNITED STATES OF AMERICA

TO

E. G. W.

Colleague and friend; research worker, clinician, and administrator in a field to which he has given notable leadership.

ACKNOWLEDGEMENT

Many people contributed to the preparation of this volume. The author is indebted to his students in several summer school classes—students who were actually teaching and whose questions, realistic demands, and practical daily problems paved the way for a simplified, detailed treatment of counseling.

This book is written primarily for teachers on the job who work with students and for school administrators who want to understand what to expect of counseling. If the following pages help to make students seem alive, vital, and interesting to teachers by giving teachers the equipment with which to see their students, the book will have accomplished its task.

Specifically, the author is deeply indebted to Josephine K. Steele and Nicholas Fattu for help and criticism in the preparation of Chapter 3, a discussion of the fundamentals of statistics and the understanding of tests; to Bernice Larson Zieve for the test materials in Chapter 4; and to Clifford P. Froehlich, North Dakota State Director of Occupational Information and Guidance, for the "case history" of a community guidance program in Chapter 8. These people have been more than generous in their assistance.

J. G. D.

MINNEAPOLIS, MINNESOTA

MARCH 1943

TABLE OF CONTENTS

PART ONE

PART TWO

PART THREE

PART ONE

CHAPTER 1. *Guidance and Education*

There is nothing mysterious or complex about the logic and principles of guidance. This does not mean that all people can or should attempt to be counselors or guidance workers; it simply means all people should be able to understand what these workers are trying to do.

Where Guidance Fits In

It is imperative that students have some one person in every school to whom they may turn for help in solving their problems. These pages are written to you—that one person, or even those several persons—in each school to whom the students easily and naturally turn for counsel.

No one can offer you, in any simple set of lessons, absolute technical competence in guidance. You can achieve that only by experience. But this book *can* start you on the long, sometimes tiring, always exciting, and frequently complicated road which leads to some degree of competence in guidance. The road may involve summer study; you may need to spend money for new texts—to be read in your spare time after a hard day at school; you may have sharp disagreements with your colleagues; and there may be times when the sheer routine of daily teaching activities submerges your interest and enthusiasm for the tasks of understanding students.

Perhaps the apparent rewards will not be great. Those students you help

may go on their way without thanks; and for those whom you handle badly there will always be someone ready to say "I-told-you-so."

But the time of growing up is short and the world to grow into is complex. *Students need your help.* Research studies show that students in small and large schools alike turn to their teachers, principals, and superintendents for vocational and educational guidance. These officials, then, must be prepared to give good assistance, on a sound basis of factual material collected for the student. Yet if we read the Maryland Youth Survey and the New York Regents' Inquiry, it is evident that high-school authorities seem to know little about their students and fail to carry out their guidance responsibility.

What This Book Is About

This book deals primarily with one guidance function—individual conseling—in an effort to clarify its nature and reduce it to its simplest elements.

A discussion of counseling must necessarily involve a discussion of tests, which should be considered as an economic and accurate means of studying the student, preparatory to effective guidance. The rising importance of tests cannot be stressed too heavily. Ability, achievement, aptitude—there are many kinds of tests, as well as many variations in the quality of them. Part of your experience will be in learning to pick and choose wisely to suit the specific needs of your school's testing program.

Yet those who work with individual students will find these pages only a starting point and a frame of reference for the development of their own clinical skills. We will discuss the items of information which must be known about the student in order to *diagnose his case.* We will describe briefly the methods and controlling principles of counseling; what and how you can find out about your students; how you can use and understand statistics and tests; and how you can set up a counseling program for your school, or how you can strengthen your program if one has already been set up. Finally, you will find a "case history" of one community that started and developed a guidance program to meet its own needs.

Where Guidance Comes into Education

Today's students are moving out into a world increasingly filled with older people. A declining birth rate, more effective medical care, and restricted immigration combine to advance the average age of the total population. Furthermore, industrial and economic changes have produced a different pat-

tern and distribution of jobs, decreasing the proportions in traditional trades, increasing the semi-skilled, clerical, and distributive jobs.

Pertinently, student mortality and withdrawal rates in grades nine through twelve, which average about 45 per cent in the country at large, indicate that less than one-half of the ninth grade students complete the education they start. Certainly, incomplete high-school courses raise doubts that the job of democratic education is being well done.

Yet guidance offers no society-wide solution to the problems of adolescents. It may be a preventive measure for some students or a curative measure for others. Wasted human effort and maladjustment cannot be eliminated, but they *can* be decreased. So this book represents one basis for the in-service training of teachers who are given the responsibility for the job of individual counseling of students.

Is There a Standard-Model Guidance Program?

What Constitutes Guidance?

No one can draw a blueprint for guidance which will be effective at all times in all schools. Too often guidance is discussed as if it involved a series of units or procedures to be put down on top of a going school organization. There are three problems that complicate the guidance picture. First, there is no standard model for a guidance and testing program. Second, there is no mass production of guidance results. And third, not all teachers are potential guidance workers.

The greatest difficulty for the school administrator or the teacher who first studies guidance is to get a sharply drawn and clear picture of the total guidance program, with all its parts in proper perspective. This difficulty is made even more acute since so many people with different job titles are doing guidance, and there is no clear-cut agreement about the proper number or range of functions and tasks within the guidance program.

For example, one school will claim to have a guidance program, while in reality, the program consists merely of the earlier purchase of some tests and cumulative records which by now are gathering dust in the files. Or another school will claim to have a guidance program if it maintains a class in occupational information, in which students hopefully learn about vocations. Or an administrator will shy away from the idea of a guidance program because he "can't afford it," when he is already supporting extra-curricular activities,

homerooms, and student-teacher interviews, all of which can be vital parts of the guidance program if they are well conceived and well conducted.

It is literally impossible to go into any school without finding some one function or activity which is potentially a guidance function, however well or poorly it may be carried out.

How Guidance Functions

We can clear up some of the confusion by listing guidance functions, without regard to the people who carry them out. In this way, a teacher or an administrator may see the entire program more clearly. As a matter of fact, it makes no real difference what the person's job title is. If he can carry out one or more of these functions, he belongs in the guidance program. We can adapt a list of functions from Myers' article.[1]

It is evident that somebody in each school must know the names, ages, addresses, and backgrounds of the persons in the local community whom the school is supposed to serve. Second, somebody must keep track of attendance records and watch the physical health of the students.

Third, somebody in the school must help to make out programs and classify the students for the various courses. This may involve using records from the elementary school or the junior high school. The function results in a distribution of the students to the various subject-matter curriculums. It is here that the hand of tradition and the lock-step practice of following the leader operate most heavily. Certain subjects are offered in certain years, and they are justified by some mysterious reasons regarding maturity, "readiness," or mere administrative convenience. Bright and dull students alike must fall in step.

Once the high schools complained that college entrance requirements forced such patterns on them. Since colleges are now more liberal about admission, and since only 20 per cent of high-school graduates go on to college, this argument is breaking down.

Now inspectors from the state offices of education seem to be blamed for forcing conformity to the traditional grade placement and course offering procedures. But when the child's total educational experience is as dependent upon the timing, organization, and interrelation of his classroom experiences as we know it to be, we can hope that program planning in the future

[1] Myers, G. E., "The Nature and Scope of Personnel Work." *Harvard Educational Record*, Vol. 8, No. 1, January 1938, pp. 82–93.

will be more carefully supervised under more flexible procedures and with more attention to the interests, abilities, and needs of each individual child.

Fourth, somebody in the school has to give counsel about the vocational plans and personal growth of each child. In this process of individual counseling, the course of study and its vocational significance can be more closely interrelated. In addition, encouragement toward participation in extracurricular activities needs to be part of the process of wise counseling.

Likewise, working with problems of emotional adjustment and personality development form an integral part of a guidance program, and problems of scholastic motivation, study habits, reading skills, and other educational skills crop up for handling.

In large schools, the problems within this advice-giving function can be apportioned among various special levels and types of advisors or counselors. Some classroom teachers can help with study habits and remedial work in their own subjects. Other classroom teachers can become effective in homeroom or occupational information classes. School nurses, health officers, or psychiatrists in the community can be of assistance in handling problems of physical and mental health. Extracurricular, athletic, and social activities are supervised by group workers with some special training or competence. Special advisors or vocational counselors are available to discuss vocational and educational plans. School psychologists or examiners can administer and report tests and conduct the more difficult case studies.

But such a happy division of labor is the exception rather than the rule for all but a few large schools in this broad counseling function, and it is likely to be an exception for many years to come. Yet students in smaller schools need help no less than those in larger schools, even though we know that not all teachers can become skillful counselors throughout a wide range of problems.

Fifth in this series of functions, somebody in the school must keep adequate personnel records for the students. And, finally, someone must help in placement and follow-up after high-school graduation, either in the world of work or in some form of post-high-school training.

Controlling Factors in Guidance

We have itemized six broad personnel functions, under the general supervision of the school administrator, which are included in guidance

work. If each school administrator studies these functions and finds out who does them in his school, when they are done, and how they are done, the guidance picture begins to stand out in better perspective. Such a study, showing different emphases and rates of development and procedures, should indicate that there can be no standard-model guidance program. But it should also point up the obvious fact that certainly a good guidance program for each school can be worked out.

Here are a few of the controlling factors which make each school's program different: How much money is available, and what kinds and amounts of community support will be forthcoming? What are the employment and occupational opportunities in the area around the school? What percentage of the school population goes on to college? What percentage of the school population after graduation continues to live in the area from which it comes?

Granted that not very many well-trained guidance people are on the high-school staff, how many potentially capable people are available and how can they be identified? How will the local school board react, and how can the support of its members be won? What is the state of development of the basic guidance elements in the school? Is the homeroom merely an architectural convenience and sounding board for school announcements? Is the extracurricular activity program tied in with the curriculum? Is the dean of boys or the dean of girls a disciplinary tyrant? Is the record-keeping system inaccurately and incompletely maintained, or is it so complicated that it is an excessive clerical task? Do the teachers object to new ideas, or are they interested in trying new programs? And, finally, what physical space for guidance functions could be made available?

From a study of personnel functions and their present state of development, each school can build or strengthen its own program. As the program develops, with teacher support and enthusiasm, in-service training will become more meaningful, curriculum revision plans will take shape, and research studies will be demanded by a staff aroused to the importance of definitive knowledge of individual students.

Is Guidance Only a Big City Activity?

Approximately 75 per cent of the 25,000 public high schools in the United States have enrollments of less than 300 students. Recently the United States Office of Education published a bulletin listing the public high schools having

counselors or guidance officers.[2] This bulletin indicated that in 1937-38 about 1,300 high schools employed half- or more than half-time guidance officers. Of these 1,300 high schools, about two-thirds were reorganized high schools; that is, some junior-senior high school combination involving special administration of the tenth, eleventh, and twelfth grades.

Of this group of 1,300 high schools, the median high school enrolls 1,320 pupils. The high school which is in the lowest quarter of this group of 1,300 high schools in size still enrolls about 756 pupils.

It would seem from this evidence that guidance is now a "big city" aspect of education. Whether it needs to be is another question, but the significance of this situation is evident from a recent publication of the National Education Association discussing progress in rural education. As the publication shows, more than a thousand rural school superintendents *did not mention guidance facilities as a major problem in rural school administration.*[3] In fact guidance is not even mentioned as a characteristic of the rural school system.

Yet other evidence indicates that the small school is the one in which the rate of withdrawal may be larger and the one in which educational opportunities may be less. This is borne out by results of the much-quoted Report of the Regents' Inquiry of New York State,[4] which pointed out that "in New York City, boys and girls who do not complete the high school program stay in school on the average, until about the middle of the 11th grade. In communities of less than 2,500 population they tend to withdraw from school near the beginning of the 10th grade." The Report also indicates that "the present educational system is very far from providing educational opportunities for rural boys and girls equal to those open to young people in the cities."

Obviously, no one guidance program which is appropriate for use in city schools should be placed bodily into the rural high school. But *the structures of individual guidance are the same in the rural school as in the large urban school.* The procedures may be different in the small school, the resources may not be so great, and the types of student adjustment sought may be

[2] Greenleaf, W. J. and Brewster, R. E., *Public High Schools Having Counselors and Guidance Officers.* (Washington: Federal Security Agency, U. S. Office of Education. Misc. No. 2267. 1939.)

[3] *Progress in Rural Education,* National Education Association Research Bulletin, Vol. XVIII, No. 4, September 1940. 1201 Sixteenth Street, N. W., Washington, D. C.

[4] Spaulding, Francis T., *High School and Life,* Report of the Regents' Inquiry of New York State, The McGraw-Hill Book Company, Inc., New York, 1938.

different; but in principle and in structure, guidance need not be characteristic only of schools in big cities.

Guidance runs the risk today of being classed as one of education's noisiest band wagons. School teachers and administrators must at least go through the motions of getting on the band wagon, even if they are not sure where they are going. Because of its great popular appeal, the job of "doing guidance" has now outrun the supply of people who are well trained to do it. Since school superintendents or principals often appoint some member of the school staff to be responsible for guidance, with due adjustment of his former combined teaching-clerical-activity load, those who demand high standards of training among personnel workers must content themselves with giving in-service training to these teachers.

Fortunately, facilities for in-service training of guidance workers are improving. In 1941, the United States Office of Education published a bulletin[5] indicating that summer session guidance courses were offered as follows: 158 colleges and universities in 47 states or territories offered one or more courses in guidance; 49 teachers' colleges in 28 states offered one or more such courses, and 9 Negro colleges in 7 states did likewise. Such courses represent one form of in-service training for people who want to take part in guidance work.

Even greater importance may be attributed to the fact that teacher-training institutions in colleges and universities are beginning to offer specialized training in guidance services, leading to a specialized degree. Students from these curriculums may, over a period of years, raise the standards and effectiveness of guidance to a more satisfactory level. But until such graduates represent a larger proportion of guidance workers, we must place our major faith for improvement in various forms of in-service training for teachers on the job.

Testing as a Counseling Help

Testing is one of the more important devices to help the individual student in solving his problems. It is quite possible that the availability of increasing numbers of tests has contributed to the guidance bandwagon's speed. The job of making tests has gone ahead faster than the job of training people to use

[5] Greenleaf, W. J., *Guidance Courses: Summer Sessions, 1941,* (Washington: Federal Security Agency, U. S. Office of Education: Occupational Information and Guidance Service. Misc. No. 2549).

and understand them, but it must be remembered that tests are a means to an important end, not an end in themselves.

When you work with a student, you draw on many sources of information about him. You study his grades and talk with his teachers. You look at his health records and his extra-school activities. Often you talk to his parents and others who know what he is like when away from school. Finally, you talk to the student and, with all the skill you possess, try to get him to talk to you.

Somewhere in this total process, test scores can be useful items of information, and that is why many counselors turn to tests so hopefully as a solution to the problems of the individual student. Yet tests are really only tools for the skilled worker in human relations; they cannot help alone or in themselves, but only in relation to all other information obtainable.

What is more, tests are tools which can be harmful as well as useful in their application to the student, depending upon the person who uses or interprets the test. Like another tool, a hammer, the test is an effective instrument for craftsmanship in the proper hands, but in other hands it may play a part in the most wanton destruction.

This possibility bothers neither the maker nor the seller of the "hammer," however, and as you look at the present-day marketing arrangements for psychological tests, you will note that the dangers of misusing tests are often overlooked by some of the makers and sellers of such instruments. To use a test well, one must know something about statistics and research precedures, and one must be familiar with the logic of problems of measuring, predicting, and controlling human behavior. The testing movement in guidance is only about thirty years old and there still is much to learn.

Conflicting Theories

Because the field of guidance is still so new, there are still many steps in the guidance process about which experts are not always in close agreement. One school of thought believes, for instance, that record-keeping is the heart of the guidance program. Another holds to homeroom methods as the outstanding guidance procedure. Still another believes that all teachers must also be guidance specialists, as opposed to the idea that special experts are needed. Many guidance workers, lacking specialized training, blindly accept the type of program which is thrust upon them most forcibly and hope to achieve the desired results.

The critical observer notices, however, than no one of these various schools of thought has much evidence to prove clearly the superiority of its approach. We hope to clarify some of these problems a little in the pages that follow, and you will note that this book is itself a product of a point of view: that the effective total guidance program grows out of competent and adequate clinical work with individual students.

It is probably fortunate that differences of opinion do exist in the field of guidance; they give a wide scope for worthwhile variation and experimentation in the local institution. Differences of opinion are dangerous only when their influence becomes too extreme and restricts the local institution from seeing other possibilities.

Selected Bibliography

Note: In the selected bibliography for each chapter, certain general principles need explanation. First, only book or text or monograph references have been listed, since they can be obtained directly; references to articles in technical journals have not been listed, since such technical journals are seldom found outside a university or college library. Second, the retail price, without discount, has been included to give some idea of the costs of a selected group of technical books that the teacher or administrator may wish to purchase.

The symbol (t) indicates that the bibliography item is technical in the sense of requiring basic knowledge in statistics, psychology, or tests and measurements for its understanding.

An attempt has been made to indicate a minimum, essential library for those who want to learn more about counseling. The symbol (*) indicates an essential reference. Not all personnel workers will agree with the list so chosen, but such a classification may be useful to the reader.

In some of the chapters it is difficult, if not impossible, to cite references specific to the content of the chapter. This is particularly true of Chapters 6 and 7 where both sets of references will be found to deal with the identification and treatment of student problems. In general, however, the selected bibliographies are directly related to the discussion in each chapter.

1. Chapman, P. W. *Guidance Programs for Rural High Schools.* Occupational Information and Guidance Service, U. S. Office of Education, Washington, D. C., 1940. 58 pp. Superintendent of Documents, Washington, D. C., Price: 10 cents.

Very brief description of the guidance programs in two small communities, one on a county-wide basis. Useful as reference to organization plans and record-keeping. Not an attempt to tell how to do guidance.

2. Myers, G. E. *Principles and Techniques of Vocational Guidance.* McGraw-Hill Book Company, New York, 1941. 377 pp. Price $3.50. (*)

Up-to-date reference, useful in its description and summary of the literature. Possibly too much stress on the vocational phase of guidance.

3. Ruch, G. M. and Segel, David. *Minimum Essentials of the Individual Inventory in Guidance.* U. S. Office of Education, U. S. Government Printing Office, Washington, D. C., 83 pp. Price: 15 cents.

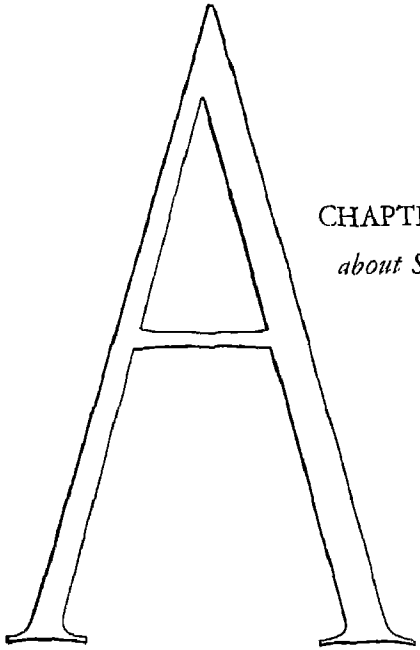
   A necessary reference, although the material is not always clearly organized, and counseling processes are not described in detail. Ranges from simple descriptions to more complex statistical references.

4. U. S. Office of Education, Vocational Division, Occupational Information and Guidance Service, Washington, D. C.

   This division has a wide range of bibliographical materials and suggestions available at little or no cost to interested high-school people. Get in touch with the Division and get on its mailing list.

5. Williamson, E. G. and Hahn, M. E. *Introduction to High School Counseling.* McGraw-Hill Book Company, New York, 1940. 314 pp. Price: $3.00. (*)

   A clear discussion of all student personnel functions that should be included in the high-school program, showing their relations and organization. Required reading for teachers and administrators who want to see the framework of the entire guidance program.



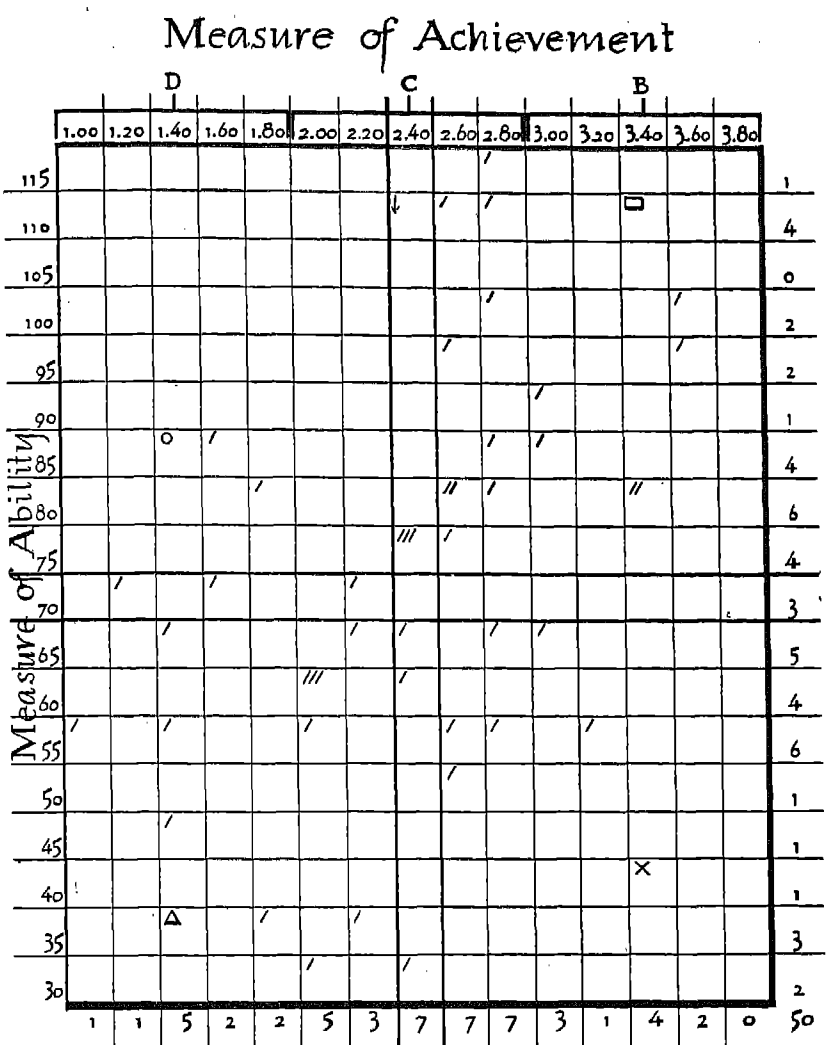
CHAPTER 2. *What We Must Know about Students*

A first principle of education is that students are supposed to *work up to capacity in a meaningful course of study.* Essentially, teachers, administrators, and all the other people in education are supposed to achieve this result by their various techniques or procedures. But when we look at three words in this statement—"work," "capacity," and "meaningful"—we find the root of many educational problems. How do we set the stage, as teachers, so that our students can work—or learn—efficiently? What factors interfere with learning? How good are our examinations for measuring work accomplished? How long do students retain or remember what they learn at the job of getting educated?

We sometimes work like slaves to "get across" to students what we believe is an organized body of knowledge or skills that we call the content of a course. Yet after one, two, three, or more years, how much do they retain? The curve of normal forgetting and the interference of later activities often yield a pathetically small percentage of all the facts we so hopefully taught.

Are They Working up to Capacity?

Capacity is not an easy thing to judge, and the counselor will need to interview, test, and observe students carefully to make adequate judgments. How is the score on an intelligence test affected by a reading disability or by



Note: the figures along the right side and the bottom give the number in each row. Those in the upper right-hand and in the lower left-hand quadrant apparently are working "up to capacity." Those in the upper left-hand quadrant can be considered underachievers, and those in the lower right-hand quadrant overachievers.

FIGURE 1

temporary conditions affecting the student? What personal problems or teacher deficiencies or motivational problems prevent students from using their capacity efficiently in the learning process? Are there other kinds of capacity besides intellectual or scholastic capacity which we must take into consideration?

Another important question we need to ask is: What is a meaningful course of study? For some teachers, only vocational training is meaningful. For a large majority, the general academic course or college preparatory course is the only road to educational success. All kinds of out-of-school groups also know what education should mean. They hammer away at such concepts as Americanism, thrift, safety, good health habits, or a form of job insurance through vocational training at a higher level than the parents achieved.

There is no set pattern of answers to these questions, no final chart by which education can be steered. It is probably just as well that this is so, since each school must work out the solution that best fits its needs and the needs of the community it serves.

How can the counselor find out whether a student is working up to capacity? The best way to do this is to compare the student's ability with his achievement. If the achievement is "in line" with the ability, then the individual is working up to capacity. But suppose a student is not achieving as much as his ability warrants? What then?

A graphic method of seeing this relation appears in Figure 1, called a "scatter-diagram."

Running along the horizontal edge of the scatter-diagram is a scale to measure classroom achievement in terms of average grades, with the scale value of 1.00 equalling a D average; 2.00 a C average; 3.00 a B average, and 4.00 an A average. On the vertical edge of the square is a scale showing progressive raw scores on a test of scholastic aptitude. There were 169 questions on the test used in this example and it had a total possible score of 215.

On the scatter-diagram are plotted or entered pairs of scores for 50 seniors in a certain high school. Each tally in the cells of the diagram represents a pair of scores for one student—one measure of ability and one measure of achievement per student. By way of illustrating how these scores were entered, here is a partial list of the 50 students—their names, the measure of their ability, and the measure of their classroom achievement:

TABLE 1

	Name of Student	Test Score	High School Grade Average
□	1. Adams, John	114	3.55
	2. Anderson, Anna	66	2.25
	3. Arndt, George	65	3.00
	4. Bennett, Virginia	77	2.58
△	5. Brown, Fred	39	1.58
	6. Butler, June	56	2.08
○	7. Chalmers, Mary	87	1.50
	8. Chamberlain, Richard	31	2.58
	9. Collins, Diana	56	2.75
	10. Cummins, Lois	34	2.00
	11. Daly, Robert	94	3.00
×	12. Daniels, Henry	41	3.41
	13. Donaldson, David	65	2.84
	14. Decker, Harriet	79	2.53
	15. Dunn, Muriel	36	2.33
↓	16. Emerson, Bill	110	2.59

For purposes of identification between this list and the scatter-diagram we have given distinctive symbols to five of the students—Adams, Brown, Chalmers, Daniels, Emerson—and by checking the list against the diagram you will quickly see how the scores have been charted for each student.

The division marks along the horizontal and vertical edges of the square mark the units of measurement. Each is called a "class interval," which is simply a convenience in tabulating test scores or other measures. For example, all scores on the test that fall from 30 up to 35 are put in that row marked on the vertical edge, and all scores that fall from 35 up to 40 are placed in the next higher row on the vertical edge. On the horizontal edge, all grade averages falling between 1.00 and 1.20 are put in the first column, all grade averages falling from 1.20 up to 1.40 go in the next column, and so on.

Now let's find some of our students in this collection of tallies on the scatter-diagram. The tally with a square as its symbol represents John Adams, the first student on our list. He has a grade average of 3.55, better than a B.

On the test of scholastic ability John had 114 items correct out of a possible 215. Fred Brown's scores, on the other hand, were quite different. The triangle represents his scores—39 items right on the test of scholastic aptitude, and a grade average of 1.58, a high D average.

The tally with the circle symbol indicates Mary Chalmer's scores. She answered 87 items correctly on the test of scholastic aptitude, and she earned a grade average of 1.50, a solid D in her first 7 semesters. The tally with the cross indicates Henry Daniel's scores. He had an average grade of 3.41, a little better than a B, and he had 41 items of the 215 correct on the test of scholastic aptitude. Finally, Bill Emerson, with the arrow symbol, scored 110 right on the aptitude test and had a grade-point average of 2.59, somewhat above a C average.

In the scatter-diagram there is a general tendency for low scores on the test to accompany low grade averages, and for high scores on the test to accompany high grade averages. The tallies "drift" from the lower left-hand corner to the upper right-hand corner.

We can put in other guideposts that point up this tendency. We are all familiar with the method of averaging a set of numbers: add up the number or "score" assigned to each individual and divide this total by the number of individuals in the group. By this method the average test score for these 50 students is 73, and the average grade is 2.50. The lines running from left to right horizontally across the diagram are drawn through the class interval containing this average test score. The lines running from top to bottom vertically are drawn through the class interval containing this average grade for the group. These four lines divide the square into four smaller sections or quadrants.

With these guideposts, we can now describe our five students more clearly. Mary might be called an "underachiever," Henry an "overachiever," and Bill an "underachiever" to some extent. John is working somewhere near capacity, and so is Fred.

All who are above the average line in ability and below (to the left of) the average line in achievement may be called underachievers. All who are below the average line in ability and above (to the right of) the average line in achievement, may be called overachievers.

Like John, most of the students who are in the upper right-hand section of the square are assumed to be getting along all right academically. But we can't be sure about Bill. His test score is 110, considerably above the average,

while his grades are only 2.59, just barely above average. Is he an underachiever in terms of what he *could* be doing? Additional investigation of his abilities would be necessary before a sound conclusion could be drawn.

Most of the students who, like Fred, are in the lower left-hand section of the square are assumed to be the not-quite-bright students. Teachers sigh and say that such students, like poor folks, are always with us—at least until their pile-up of poor grades drives them out of school from sheer discouragement and despair.

But what if an imaginative and sympathetic group of teachers designed special curricular offerings for such students as Fred? Of course, there are those who would feel that "lowering standards" is the cardinal educational sin. But some high schools have modified the general academic courses and started special new courses in which pupils like Fred can do well and be happy. Students stay longer in these schools than in the schools where they are looked upon as a necessary evil, and they come out better equipped to cope with life's demands.

Why Do Students Underachieve?

Since teachers are always bothered by the students who "don't do as well as they're capable of doing," we will keep in mind the upper left-hand corner of our scatter-diagram and think of a few reasons familiar to counselors and teachers for students not doing as well in their school work as they seem capable of doing.

Suppose a student antagonizes most of his teachers because of a series of personality clashes. The teachers consciously or unconsciously grade him down because of these personal feelings. Is he an underachiever? Suppose another student is working long hours outside of school to help the family finances. Or suppose he lacks reading skills, or arithmetic fundamentals, or English skills for certain subjects.

The teachers agree that another student doesn't work hard enough; he is inclined to be "lazy." Therefore his grades fall below average. But the important question is *why* he doesn't work hard enough, since there probably isn't any such thing as a real trait of "laziness." What if the student is in general poor health and physically unable to concentrate on the task in hand? What if he applies inefficient study habits, even though he studies hard? What if he is so upset by an emotional or personal problem that he can't concentrate on his class work? All these problems could result in apparent underachievement.

Another student of better-than-average ability may appear to underachieve simply because classroom work is his least inspiring activity. He may know most of what the teacher is discussing and he may have a driving interest in some outside hobby or activity that opens up much more interesting paths to new kinds of knowledge than his school work. Teachers too seldom realize that they are competing with other individuals or agencies for a share of the enthusiasm and interest that almost any child can show when motivated.

Again, a student may be emotionally confused or upset. He may withdraw from unpleasant realities by day-dreaming, or he may seek attention by making trouble or by bullying smaller children. He may feel lonely, and he may be snubbed by other students because of some difference in appearance, dress, or background. He may come to school each morning direct from an exhausting emotional scene between maladjusted parents.

Teachers often complain of students who just seem to be "coasting along" with a minimum of effort. They exhort and lecture these students to develop good work habits and to shun the easy way. Yet we must remember that adolescents are not different from adults in this respect. Many industrial experiments have been made which show that adults, *competent* in their jobs, made startling increases in output when working conditions were changed or when rewards were set up or competition increased.

On the other hand, there is considerable evidence to show that *restriction* in output often occurs in situations where management and labor do not work harmoniously. New and eager workers on assembly lines have been "slowed down" by their fellow workers to keep the whole process from being speeded up. Adolescents show this same tendency to "slow down" a high grade maker by open or silent disapproval of his behavior. Most adolescents would rather get grades below their ability level than be pointed out as "teacher's pet." This type of underachievement can only be combatted by making school work intrinsically more interesting and more fun. It is a student morale problem.

Sensitive teachers often are dimly or acutely aware of these things. They know that sometimes their words fall on heedless ears; yet they don't often know how to search out the real problem.

Certainly one idea should be stressed here. Underachievement is most often a symptom or a sign that something is out of gear in the adolescent's life or environment.

Finally, on this subject of underachievement, a teacher must always be

aware of the student who may have cheated on the test of scholastic aptitute, because of careless test supervision and administration, and who can look like an underachiever when his grades are averaged. He makes a spuriously high score on the test, and therefore his tally lands in the upper left-hand corner of the scatter-diagram instead of in the lower left-hand corner where it belongs.

Why Do Students Overachieve?

Let us look now at the group below average in ability and above average in achievement. They are found in the other sparsely settled quadrant of the diagram, the lower right-hand section. If the student has been carelessly tested or did not understand the test instructions, his ability test score may be too low; and therefore he looks like an overachiever when his grades are averaged. In such cases an error of measurement has given the appearance of overachievement. One specific reason for an inadequate test score on a short-time-limit test may be the child's deficient reading skills in either speed of reading or comprehension of material read. With more time available for studying, the reading disability is not so much of a handicap, and the grades are a truer reflection of the use of ability *when plenty of time* can be found for its use.

There are other reasons for apparent overachievement. Just as some students manage to antagonize teachers and receive low grades for that reason, so other students make such good impressions on teachers that they receive high grades for good behavior and pleasant personality rather than for knowledge of subject matter. If the test is truly a measure of ability, and if students with below-average test scores receive above-average grades because of good personalities, such students will seem to be overachievers.

Some students may be driven to excessive studying and concentration because they want to "show up" the children who have snubbed them or kept them out of social or athletic activities. Others may have extremely efficient and regular study habits which compensate for lower ability. These two broad types of cases are more truly overachievers by virtue of their own excessive or skillful efforts. The only question about such cases is: How long can they keep it up? The bookworm who tries to win approval by "grinding" to make good grades may be developing personality traits which will make the good grades meaningless in job competition. The skillful and regular studier may run up against tougher competition in the next-higher educational level and fall below average in his grades.

There is one interesting general observation about high-school grades. On the average, girls make better grades than boys, even when both sexes are equal in ability. This may mean that girls are more docile than boys and are rewarded in the grades for good behavior. Or it may mean that girls usually have better habits of study than boys and are more regular in their studying. In our diagram, we should expect to find more boys than girls in the underachievement group and more girls than boys in the overachievement group.

What if Students Are up to Capacity?

From the statistician's standpoint, the students in the lower left-hand corner and upper right-hand corner are "up to capacity." But does that mean teachers and advisors can afford to overlook them? Obviously not!

Look at the students who are below average in both ability and achievement. Surely they are working up to capacity, but they include a large percentage of students who will drop out before graduation, marked as failures, incompletely educated, and poorly prepared to face the out-of-school life into which their failing grades have pushed them. As long as general academic courses comprise the major portion of curriculums, this group will be large. As long as failure is their only reward for their plodding behavior, school work can only be frustrating and unsatisfying for them. They go on, as they must, to make an adjustment in a life of competition where abstract academic ability is not the only stepping stone to success. There is no reason why the school, if it overcame its preoccupation with success in the so-called general academic or college preparatory course, should not also include competitive situations in which they could experience success.

It does not solve many problems to sidetrack such students into commercial or trade courses, on the frequently false assumption that if they cannot use their heads, they can use their hands or feet. Trade and commercial courses have a real and worthwhile function to perform in developing experiences for the large majority of pupils whose education ends at grade 12. But they should not be considered the resting place for students who are not very successful in other academic work.

As a matter of fact, students who are poor in general academic work often cannot hope to receive substantially greater benefits from vocational training than they received from their general education. It is time for the teachers of academic and nonacademic subjects to co-operate in setting up as many

different educational experiences as possible for the total student group. They should not continue to remain independent and somewhat critical of each other if they are to do their common job well.

Our group in the lower left quadrant also will include many pathetic cases, characterized by low ability and personality conflicts growing out of repeated failures. Because our educational system too often lacks flexibility in its methods of grading or its selection of content and methods, counselors may not always be able to help these students very much. But no one who works with them as individuals can avoid being upset at education's failure to prepare them adequately for young adulthood. We believe that one criterion of a good school system is the provisions it makes for the adequate and stimulating education of its low-ability students—by differentiated courses of study and by differential grading scales.

However, "class sectioning" on the basis of ability is not a very good solution to this problem, *if* the same content is taught to the slow learners and *if* they are held to the same ultimate standards of final proficiency in this content.

What about the vocational choices of the bright students? While they are not much troubled by the same educational problems that confront the other students, there is one other broad class of problem, vocational in nature, which may later prove to be stumbling blocks. We can consider vocational choices right away with these students, whereas in the upper left or lower right corners we may have other immediate problems of adjustment to attempt to solve first. If the high-school course is of a general nature, students may be making vocational choices without many opportunities for trying out their abilities and interests, in or out of class. Therefore, even though these students are working "up to capacity" at present, they may be headed for a job situation or college situation to which they may find adjustment difficult.

Consider also the admittedly small percentage of high-school graduates who go on to college. Certainly they are important from a leadership standpoint. Throughout the country, this figure runs about 20 per cent. Yet of this small percentage, *about 60 per cent, will not complete the college training they start.* How much of this college failure might be prevented if high-school teachers and counselors were more effective personnel workers!

Superior students like Bill may drift along or be slowed up by the slower average speed of his class in high school. But outside class assignments

and stimulation to outside intellectual activities worked out by the teacher and counselor can prevent Bill from getting into poor study habits that might cause failure later. Where high ability students are generally above average in all but one field, such as mathematics, English, or intensive reading skills, the high-school counselor might have identified and cured the disability; or if it seemed incurable, he might have warned the student to avoid some college courses where the disability would lead to college failure.

Consider also another type of problem to be found among these students, regardless of whether they go to work or to college after high school. What kinds of personal and social adjustments do they make when they leave high school? Recent studies in industry show that a substantial group of workers are fired or quit, *not* because they are incompetent on the job, but because they can't get along with others or with themselves happily and peacefully. Personality development has a dollars-and-cents value, as well as a philosophic value, for young adulthood. The schools inevitably play a part in this development, by their grades, their activity programs, their student government work, and their student-teacher relations. The part they play must be consciously constructive.

Are our high-school graduates or withdrawals well adjusted socially; are they emotionally stable insofar as the school can influence them; are they educated to the problems of sex adjustment and emotional severance of the family ties that they must face? Such questions are increasingly important, and they must be raised about every tally and therefore about every student in our diagram. These are some of the outcomes of guidance and counseling. We mention them here in regard to the "up-to-capacity" group because we are prone to overlook the possible existence of *any* problems in this group.

Studying the Student

By now our scatter-diagram has come alive as we see how it may be used as an effective approach to individual problems. We have been discussing, in general terms, the process of studying the student. Clinical personnel workers call this process the diagnosis. We can see that some students, whose poor grades are symptoms of something out of gear *right now,* must be studied in an effort to get them working nearer to capacity. On the other hand, we have been careful to point out that grades as the measure of work or output may not be perfect measures of learning.

We can also see that teachers must concern themselves with students

who, in the classroom sense, seem to be up to capacity, with an eye to the prevention of problems which may arise in the near or remote future. In fact, at first reading, it may seem that we have thought up so many things to be found in students that teachers won't have any time left to teach!

Before we can isolate one student's problem or combination of problems, however, there is one preliminary step to be taken in guidance—the collecting and recording of information.

It is in this step that tests can be considered as means for providing certain types of information. Obviously, the more information you have, the better will be your diagnosis. And the more closely that information follows the techniques of scientific method—which is the primary value of tests—the more accurate it will be. It is for this reason then that we stress the need for tests and for a proper understanding of them. We would like to prevent our students from underachieving; we would also like to see that they are free from other problems such as we considered in some of those who are up to capacity as far as grades are concerned. What must we now find out about students?

What to Look For

Many years of clinical experience have made it possible for us to determine certain categories of information which we need to know about any student. Here they are:

1. *General academic ability.* We have already hinted at the fact that one test score may be an incorrect measure of ability, and we have mentioned some of the possible reasons for the error. Therefore it is well to check on academic ability again, just to make sure. We know that general academic ability is important as one index to the individual's final educational and vocational adjustment. All other things being equal, the more academic ability the individual has, the farther he can go in school and the higher will be his final vocational adjustment. Therefore we have to be quite sure that we get a good estimate of such ability, even if we have to use more than one test.

2. *Past achievement.* If you will look again at Figure 1, you will see that the student with the highest grade average has not made the top score on the test, and the student with the lowest test score has not been the one with the poorest grades. In regard to height and weight, we also know from our experience that the tallest person is not always the heaviest person, and the

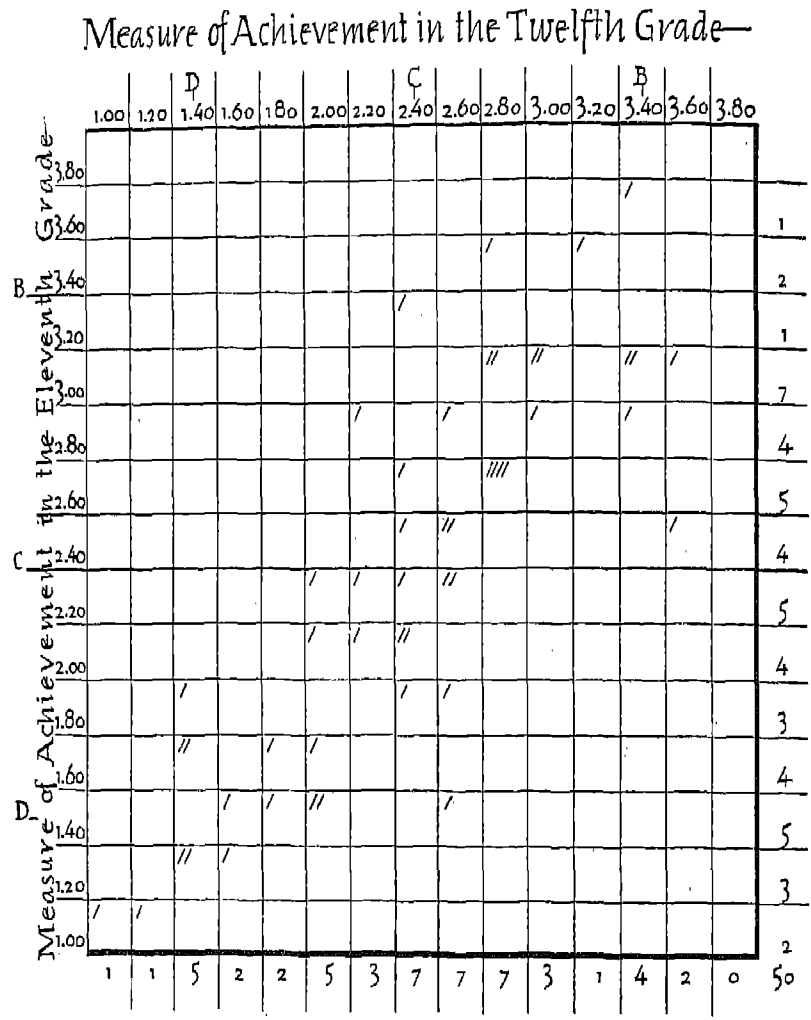

Measure of Achievement in the Twelfth Grade—
Measure of Achievement in the Eleventh Grade—
D
C
B
1.00 1.20 1.40 1.60 1.80 2.00 2.20 2.40 2.60 2.80 3.00 3.20 3.40 3.60 3.80
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
B
C
D
1 1 5 2 2 5 3 7 7 7 3 1 4 2 0 50

FIGURE 2

lightest person is not always the shortest person. No two human traits are perfectly related. No two human traits vary together in such a way that the person having the greatest amount of one trait automatically has the greatest amount of the other trait.

Now in Figure 2, the same 50 students are tallied, but this time we are using their eleventh grade scholastic achievements in place of a test of scholastic aptitude, and relating their marks in grade eleven to their marks in grade twelve. We see in Figure 2 that the drift of paired grades is more clearly marked than the drift of the test score paired with the grade average. There are fewer cases found in the upper left and lower right sections of the diagram in Figure 2 than there were in Figure 1. This means that future grades can be predicted better from past grades than they can from one test of scholastic ability.

Of 27 students at or above the ability average in Figure 1, six or 22 per cent were below average in achievement; but in Figure 2, 24 students were at or above average in their grades in the junior year, and only 1 or 4 per cent of them fell below average in their grades in the senior year. The difference in these two percentages shows how past grades predict future grades slightly better than does an ability test.

Therefore it is important in studying our students as individuals to know what their past grades are, because these past grades are good clues to future grades. This statement does not minimize the importance of finding out also what their ability may be, since ability must be known if you are going to know the level that each child's achievement should be expected to reach.

Furthermore, it is important to see in an achievement record the strong and weak points each student shows. Are social sciences harder for him than natural sciences throughout all the grades? Has English or mathematics always been his weakest subject? Did he do a better job in the class play than he did on the school newspaper? Was he more successful the summer he worked on a farm than he was the summer he was a stock boy in a store?

Achievements represent abilities or aptitudes *in use.* Differences in achievements within the individual are important not only as indices of present strengths and weaknesses but also as guideposts pointing the way to the future.

3. *Aptitudes and disabilities.* Ordinarily most individuals have some

latent possibilities which are not called into play in their daily routines. When a person is doing well in a task, we may say he has a natural bent for such tasks, or that he has a natural aptitude, indicating that the bent or aptitude was present as the basis for doing well. But when daily routines do not call forth all our natural bents, counselors must be alert to spot these potentialities and bring them into use.

Similarly, some of us have disabilities that pull down our showing in certain activities. We may not be able to read efficiently; we may lack skills in studying or memorizing or organizing new ideas; our vocabularies may be limited; our hands may fumble in manipulative tasks; we may not be able to distinguish one note of music from another. We may have these disabilities in spite of having pretty good general ability, and here also the counselor must be alert to spot the weakness before it gets us into competitive difficulty.

4. *Interests.* Our vocational choices are one clue to where we hope to get in the world and one way of stating what we believe our interests to be. We like or dislike many things and people; we're interested in or bored by many activities. We have hobbies; we are motivated to undertake jobs. However we may name or describe all these factors, they are essentially our interests—the things which hold our attention for longer or shorter periods of time. Interests may either help keep the student attentive in class or distract him from the classroom tasks. They bring about better learning when present, or they interfere with learning when they are absent. If our vocational choices, as expressions of interests, are impractical or impossible, we may lead unhappy and frustrated work lives. Whatever his interests are, we must know about them in our study of the student.

5. *Personality adjustments.* We are continually adjusting our personalities to those of other people. Some of us learn to make these adjustments more quickly than others. Most of us get into one particular pattern of personality and find it hard to change. Some individuals make such bad adjustments that they are maladjusted within their group. Such individuals may never be able to translate their abilities or aptitudes or interests into successful achievements because they simply cannot get along with people. So in studying students we must take into account their range of personality and personal adjustments. Are they socially sure-footed? Do they shy away from social situations? Are they always unpopular or are they sought

out by their fellows? Must they always have their own way? How can we make judgments about personality traits?

6. *Physical well-being.* We no longer need to be convinced of the importance of good health. But we do sometimes overlook poor eyesight, poor hearing, poor general health, or specific health factors as explanations for the behavior we see in our students. Therefore someone must be alert to spot these conditions and see their relation to the classroom and extracurricular behavior of the student.

7. *Family background.* Part of the job of education is to strengthen the good influences in the student's environment. Furthermore, the family background as a source of financial support is a basic item of importance in educational and vocational planning. Since family background is a general influence operating on the child for a greater number of hours per day than the school influence, we cannot escape the necessity of learning something about that background, and no study of the student is complete unless it is taken into account.

8. *The world of work.* The first seven types of information deal primarily with the student's life and characteristics. But we cannot be of greatest service to the student without knowing about the jobs he can hope for and the labor market in which he must sell his services as a young adult. Which jobs are demanding increasing numbers of workers; which jobs are disappearing from industry? What duties, qualifications, salaries, and lines of advancement characterize broad families of jobs? What types and amounts of special training and experience are necessary after high school? What are the best procedures in job-hunting? The answers to these questions must be sought from one of several occupational information services or agencies whose materials are available at little cost to any school.

On the Trail of Clues

We have listed eight types of information that we should have in determining whether our students are working up to capacity now and may adjust well after they finish school. Not only will these eight types of information give us clues to general educational problems, but even more important, they will give us clues about each student's future course of development and may tell us what to do, in or out of school, to help in his development. In the last analysis, individual pupil adjustment and development should be the outcome of any educational program. School

is just one experience in the adolescent's total range of experience. The school experience must be as deep, lasting, and extensive as possible, for it is one of society's last formal chances to bring about constructive individual development.

There is another comment that must be made about our scatter-diagram population. These eight types of information, when collected, will permit the counselor to understand or diagnose the problems of each student, as an aid to solving a present problem or preventing a future problem. The information must be available in usable form; therefore a record-keeping system must operate. Into the records must go the eight types of information whenever and wherever collected. The records must be used in each guidance interview. Techniques of collecting data and maintaining records will be discussed in more detail in Chapter 5.

As we go on, then, it will be wise to keep in mind that the record system is to function in the total process of building up selected items of information about each of the students. Out of such records will grow clear pictures of groups of students—what they want, how they feel, what pressures they work under. Periodically the teachers must study these pictures of their student groups in order to answer this question: how well does our total school program meet the needs, interests, and abilities of the children we serve? Where the total school program is inappropriate, the counselor, the teacher, and the administrator together must face that fact and make changes.

One last point. The descriptions of possible problems in these chapters should indicate clearly that knowing the child's ability and school achievement, either as single facts or together as in our scatter-diagram, can never tell us *why* overachievement or underachievement is found. We must seek the clues to *why* by the total process of diagnosis—by searching into other aspects of the student's make-up and background. It follows, therefore, that if we know only that one student's ability and achievement are out of line, we can only urge him to do better work or attempt to frighten him into doing better work. We cannot get at the reasons for underachievement unless we get more facts about him. Similarly, if we are content when we find his ability and achievement in line, we may, unless we get more information about him, ignore other problems that exist.

Grades and their relation to ability are only symptoms or guideposts to the student's total well-being. This is different from the too-frequent belief that grades are the real end of education.

Let us examine now the subject of fundamental statistics and how we can use them in doing a more effective guidance job.

Selected Bibliography

1. Anonymous. *The Saber-Tooth Curriculum.* Mc-Graw-Hill Book Company, New York, 1939. 139 pp. Price: $1.00.

   A biting and effective satire on the philosophic wranglings of curriculum makers. Required reading when the profession of teaching seems a little grim and stodgy.

2. Bell, H. M. *Youth Tell Their Story.* American Council on Education, 744 Jackson Place, Washington, D. C., 1938. 273 pp. Price: $1.50. (*)

   What students, in and out of school, say about education. They say plenty and it's not all pleasant reading. Invaluable as a clear picture of the youth problem.

3. Cole, Luella. *Psychology of Adolescence.* Farrar and Rinehart, New York, 1936. 503 pp. Price: $3.00. (t)

   Readable and interesting text on the teen-age child. This knowledge represents part of the basic psychological background of the counselor.

4. Menefee, L. A. and Chambers, M. M. *American Youth: An Annotated Bibliography.* American Council on Education, 744 Jackson Place, Washington, D. C., 1938. 492 pp. Price: $3.00.

   Basic source of references to a wide range of studies of youth. Particularly valuable if all teachers want to make a systematic study of the research and literature about youth in and out of school. Not a technical handbook or guide to procedures.

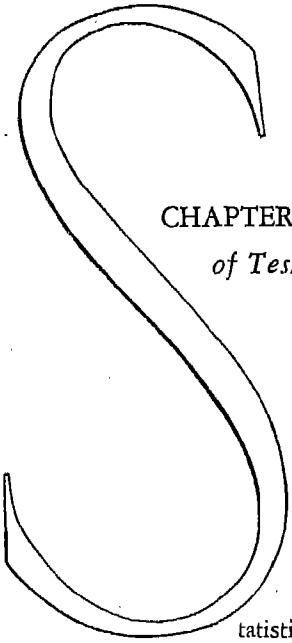
5. Monroe, W. S. (editor) *The Encyclopedia of Educational Research.* The Macmillan Company, New York, 1941. 1,344 pp. Price: $10.00. (t) (*)

   Invaluable but expensive reference work, covering all fields and problems of education. Emphasis on present accepted practices and meaning of relevant research.

6. Spaulding, F. T. *High School and Life: The Regents' Inquiry.* McGraw-Hill Book Company, New York, 1939. 377 pp. Price: $3.00. (*)

   What educational experts say about education. On the evidence of student preparation for life, adequacy of the school's knowledge of the student, adequacy of educational and vocational guidance, and efficiency of school organization, we're not doing such a good job. Required reading for administrators and school boards.

PART TWO



CHAPTER 3. *Statistics and the Understanding of Tests*

tatistical methods can be valuable summarizing or "shorthand" devices. A knowledge of statistics is essential if the high-school counselor and guidance worker is to interpret test results correctly.

What Statistics Can Do

When people talk about grading on a normal curve, for example, they are seldom aware of the common-sense meaning of the phrase. As a matter of fact, the normal curve means quite simply this: very few people have a lot of whatever is being measured; very few people have a small amount of it; and most people have a fair amount of it. This statement holds, regardless of whether we are measuring height, intelligence, knowledge of mathematics, or social skills. This idea about people possessing traits in varying degrees existed in our grading systems and in our thinking long before statisticians and educators borrowed the normal curve expression from other fields of mathematics and made it over into a convenient educational term.

This chapter is not a complete statistical manual; it is a simple discussion of the fundamentals of statistics as they relate to guidance. The author believes that they will be helpful to those unfamiliar with statistical ideas and methods.

Fundamental Ideas and Definitions

Look at the numbers in Table 2 below. They certainly don't make much sense the way they are listed there. Actually, the numbers above the center line are scores on a test of scholastic aptitude made by our 50 seniors in High School A, who also were the subjects of the scatter-diagram in Figures 1 and 2. The numbers below the center line are scores made on the same test by 40 seniors in High School B.

TABLE 2

School A									
66	65	77	56	31	56	34	94	65	119
79	36	60	110	99	74	87	39	41	59
57	63	101	112	63	83	110	72	99	77
55	101	87	39	64	74	75	81	67	87
54	56	82	114	85	82	80	65	80	49
School B									
130	79	68	40	110	79	65	35		
97	79	65	30	90	75	64	29		
90	74	64	26	86	73	64	24		
85	73	60	23	83	73	60	22		
82	70	50	20	82	72	60	20		

Consider the scores for the 50 seniors in High School A. If we first arrange them in order from high to low, they begin to make more sense. We get the following order out of the scores:

TABLE 3

119	114	112	110	110	101	101	99	99	94
87	87	87	85	83	82	82	81	80	80
79	77	77	75	74	74	72	67	66	65
65	65	64	63	63	60	59	57	56	56
56	55	54	49	41	39	39	36	34	31

Let us now take up some of the terminology used in the field of statistics and testing and see how they relate to our test scores.

The Range. Now we can see the *range* of the scores; that is, the lowest is 31; the highest is 119. The range is 119 minus 31, or 88. A perfect score

on this test would be 215, and it is apparent that no one in the group made such a score.

It should be noted that most good psychological tests are so constructed that the top score is almost never reached, but all students get some kind of score out of all possible items. If a great many people made high scores, or if many made low scores, the test would be either too easy or too hard, and it would not *distribute* or *spread out* adequately the people being tested.

The Average. While the range is interesting as a clue to the *variability* of the 50 students on this test, we more often fix our attention on the *average* student as a point of interest. Our daily vocabulary is full of ideas about the average: batting averages; average height; average weight; average income; average grade; above average; below average. It is the single numerical statement that represents the whole group of numbers we are talking about. It is a statement of the point around which most people are found to fall in any measure. To get the average we simply add up the values of all scores and divide by the number of people who have received scores. In this case the scores add up to 3,661, and when the total is divided by the 50 students who were tested, the quotient is 73.22, which is the average score made by these 50 students.

The Standard Deviation. We talked first about the *range* of scores; i.e., the highest score minus the lowest score, as a clue to the variability of our students. Now think of two groups of people having the same average height, 5 feet 8 inches, but in one group the tallest minus the shortest person shows a difference of 12 inches, and in the other group the tallest minus the shortest person shows a difference of only six inches. In this example, the people in the first group *vary more* in height or *are more variable* in height than the people in the second group. The problem now is to get some index or clue to the variability of any group in any trait that has been measured. The range does not happen to be accurate enough for all purposes, since it is affected too much by extreme scores.

For example, here are ten scores chosen from our original 50:

34, 55, 56, 57, 59, 60, 63, 65, 67, 74

The one low score of 34 pulls the range out wide: $74 - 34 = 40$. Yet this score of 34 is badly out of line with the other scores, which "bunch" from 55 to 74. Similarly, the reader can quickly see that one extreme score like this will also affect the average to a certain extent. The average in this group of ten scores is 59.0. But if we substitute a score of 50 for our

one out-of-line score of 34, we could make a second group in which the average becomes 60.6, and the range becomes 74 — 50 = 24.

It would be better to set up a measure of variability which depends not only on the highest and lowest scores, but which takes into account every score within the group. We might start by seeing how far each score varies from the average score for all ten cases. Since the average for the first group is 59 and for the second group is 60.6, the following subtractions can be made:

TABLE 4

Group 1	Group 2
59 — 34 = +25.0	60.6 — 50 = +10.6
59 — 55 = + 4.0	60.6 — 55 = + 5.6
59 — 56 = + 3.0	60.6 — 56 = + 4.6
59 — 57 = + 2.0	60.6 — 57 = + 3.6
59 — 59 = + 0.0	60.6 — 59 = + 1.6
	60.6 — 60 = + .6
Total: +34	Total: +26.6
59 — 60 = — 1.0	60.6 — 63 = — 2.4
59 — 63 = — 4.0	60.6 — 65 = — 4.4
59 — 65 = — 6.0	60.6 — 67 = — 6.4
59 — 67 = — 8.0	60.6 — 74 = —13.4
59 — 74 = —15.0	
Total: —34	Total: —26.6
Grand total: 0	Grand total: 0

When we do this, and when we then add up separately the plus and the minus differences or *deviations* from the average, the plus and minus deviations cancel each other out; i.e., their sum is zero. We were certainly on the right track, though, in looking at each individual deviation from the average, since we can see that the people in Group 1, regardless of the plus and minus signs, *deviate more,* or *vary more* from their average than do the people in Group 2, because the separate sum of the plus or the minus deviations in Group 1 is greater than the sum in Group 2.

The next step comes now in squaring each deviation in each group, since this makes all deviations, whether plus or minus, take the plus sign.

Thus you can express the variability for each group as a single number, the sum of the squared deviations, and introduce a positive value for an index of the variability. Here they are:

TABLE 5

Group 1	Group 2
$(+25.0)^2 = 625.00$	$(+10.6)^2 = 112.36$
$(+\ 4.0)^2 = 16.00$	$(+\ 5.6)^2 = 31.36$
$(+\ 3.0)^2 = 9.00$	$(+\ 4.6)^2 = 21.16$
$(+\ 2.0)^2 = 4.00$	$(+\ 3.6)^2 = 12.96$
$(+\ 0.0)^2 = 0.00$	$(+\ 1.6)^2 = 2.56$
$(-\ 1.0)^2 = 1.00$	$(+\ .6)^2 = .36$
$(-\ 4.0)^2 = 16.00$	$(-\ 2.4)^2 = 5.76$
$(-\ 6.0)^2 = 36.00$	$(-\ 4.4)^2 = 19.36$
$(-\ 8.0)^2 = 64.00$	$(-\ 6.4)^2 = 40.96$
$(-15.0)^2 = 225.00$	$(-13.4)^2 = 179.56$
996.00	426.40

Now when we add the squared deviations we can see again that Group 1 is more variable than Group 2. But these totals have two weaknesses: they are awkward, and they vary with the number of people studied in each group. So let's divide them by the number of students in each group to get the *average squared deviation* on a "per-individual" basis. This *quotient* is now always comparable from group to group, regardless of the number of cases in each group. In Group 1 it is 99.6 and in Group 2 it is 42.64. One further step will get us back even closer to our original units—take the square root of 99.6 and 42.64. The values are 9.98 and 6.53 respectively.

This value is known as the *standard deviation.* It has one invaluable characteristic which statisticians have carefully demonstrated: under normal conditions, if the standard deviation is calculated for a large enough group (30 or more people), the range of scores bounded by one standard deviation laid off on either side of the average will include about 68 per cent of the people in our group.

Let's see how true this is for our two little groups of ten students each. The average in Group 1 is 59.0; add one standard deviation of 9.98 to this and it becomes 68.98. Subtract one standard deviation of 9.98 from 59.0 and it becomes 49.02. The value 68.98 minus 49.02 should include 68 per

cent or about seven of the students in Group 1. There are actually eight students in Group 1, making scores between 49.02 and 68.98. In Group 2, which does not contain an "out-of-line" score, you will find that seven students do make scores within the range bounded by one standard deviation on either side of the average. Most distributions of test scores are of this type, unless unusual circumstances give out-of-line scores.

The standard deviation has many uses in statistics and measurement, particularly as a systematic device for locating the extent to which an individual departs from the group average in any scale of measurement. In this regard, it is interesting to notice that the *average* is the point from which the individual is judged to vary in a high or low direction. The average in psychological measurements is something like the zero point in physical science measurements. Most psychological tests are interesting in so far as they tell whether an individual is significantly above or below average or is in the average range of scores.

We can also use the standard deviation in comparing the variability of scores made by different groups of students on the same test.

Since the so-called "normal curve" can be analysed in terms of standard deviation units, we shall find the standard deviation useful in later calculations that we will want to make.

The Median. Now let's go back to the small Groups 1 and 2 again to find another measure of *central tendency and variability.* If we feel that one extremely high or extremely low score can pull the average or standard deviation out of line, we may be able to figure out a way to discount the effect of such an extreme score. As we have already noticed, both the average and the standard deviation *add in* the effect of the extreme score in their calculations. But if we take the score *exactly in the middle* of the group of ten scores, we say that five people make scores lower than this middle score and five people make scores higher than this middle score, regardless of the size of scores any one student makes. On the following page Groups 1 and 2 appear again.

In each group the *middle score* is halfway between a score of 59 and 60, which is a distance of 1 score unit. One half of 1 is .5 and this must be added to 59 or subtracted from 60 to get the halfway point of 59.5. When there is an odd number of people, the middle score is easy to spot; it's the person's score above and below which an identical number of scores will be found. This halfway score is the *median* score. It is the exact mid-

TABLE 6

Group 1	Group 2
34	50
55	55
56	56
57	57
59	59
—	—
60	60
63	63
65	65
67	67
74	74

score: an identical number of people will make scores above it and below it. Now compare the average (59) and the median (59.5) for Group 1; the average is below the median because of the one extreme score of 34. In Group 2, the average (60.6) is above the median (59.5) because no extreme score is pulling the average down.

Quartiles. An easily remembered index of variability would be the score range within which the middle 50 per cent of the people tested would fall. This means finding the score point below which the lowest 25 per cent fall, and the score point above which the highest 25 per cent fall. Thus, 25 per cent of 10 people equals 2.5 people. Counting up to get the lowest 2.5 people in Group 1, we see that scores of 34 and 55 were made by the bottom 2 people and a score of 56 by the third person from the bottom. Thus the point of 2.5 people is halfway between the second and third person, and the score that is halfway between the second and third person is halfway between 55 and 56, or 55.5, which is called the *lower quartile score point.* The middle 50 per cent of the group of ten make scores between 55.5 and 64, which is the range known as the *interquartile range,* and which is a measure of variability that includes the middle 50 per cent of the cases in the group.

The median and interquartile range are best used with small numbers of people in a group, where a few out-of-line scores can pull the average and standard deviation out of line.

That expression "out of line" assumes that we know what is "in line" with expectations. Statistics, as we said, are one means of *interpreting* meas-

urements or scores. We may have an excellent measuring or scoring device for any human trait, but we can still use it to measure that trait in the wrong people. Remember that no one can apply his measuring device to *all* people who possess some amount of the trait being measured. He can only apply it to a *sample* of people, and the sample may be large or small In our examples, Groups 1 and 2 were small *samples* of our 50 high school seniors in School A. In turn, the 50 high-school seniors were only a *sample* of all the high-school seniors in that school district or in that state or in the United States.

In research work, such as is involved in constructing tests, the whole sample can be bad, or a few people in the sample can be bad, and the interpretations made from such samples will, therefore, be bad also. In the presidential election period of 1936, the *Literary Digest* asked a sample of people to indicate whom they favored as the next president. The sample replied overwhelmingly in favor of Landon. Roosevelt was elected, and the *Literary Digest* soon went to its grave. The sample was large enough, but it was not a *typical cross section* of voting people since the people receiving ballots were chosen from lists of telephone subscribers in urban areas, and many people who did not have telephones had voting opinions different from the many people who did have telephones. In Group 1, perhaps the student who scored only 34 on the test was a tenth grader who accidentally wandered into the room; or maybe, although he was a twelfth grader, he was not typical because his reading skills were poor.

These examples illustrate one important point, not only in statistics, but also in test construction. The people who are tested and whose scores are statistically treated are only a sample of the people having the trait being tested. If they are not representative of the people for whom the test was made, no matter how good the test is and no matter how correct the statistics may be, your interpretation of their behavior on the test, individually or as a group, may be "out of line."

Short Cuts in Statistical Work. If we have only a few students in our group, the arithmetic involved in getting our statistics is not too great. But if we are working with groups of 30 or more students, it would help to have short cuts to speed up our calculations. On page 27, we saw what a *class interval* was, and that information can be useful to us in many types of statistical work. The use of class intervals simply means dividing the total range of test scores into smaller ranges, each of equal length. We can

then tally or tabulate the number of cases whose scores fall within these smaller, equal intervals. According to the statisticians, usually in handling 30 or more scores for individuals you need eight to twelve class intervals. In deciding on the size of the interval, we can subtract the lowest score from the highest score and divide this figure by the desired number of intervals, by 8, 9, 10, 11, or 12, to derive an easy interval with which to work. Intervals of two or five, or multiples of two or five are easier to work with.

Returning to our 50 scores on pages 46 and 47, we see that the highest score is 119 and the lowest is 31. The difference, or range, is 88 and we will plan to use a class interval having 10 score units in it. Eighty-eight divided by ten gives us 8.8 intervals having 10 score units each, or to the nearest whole number, 9 such intervals. The intervals are now carefully written out; in the top interval we will include every score from 110 up to but not including 120. It is convenient to write this as 110–119.9 to indicate that the class intervals do not overlap. If the intervals did overlap (100–110, 110–120, etc.) we would not know whether to tally a score of 110 in the first or in the second interval. You will see this clearly as you look at Table 7 below.

TABLE 7

Interval	Frequency	Deviation	Frequency Times Deviation	Frequency Times (Deviation Squared)
110–119.9	5	+3	+15	45
100–109.9	2	+2	+ 4	8
90– 99.9	3	+1	+ 3	3
80– 89.9	10	0	Total: +22	
70– 79.9	7	—1	— 7	7
60– 69.9	9	—2	—18	36
50– 59.9	7	—3	—21	63
40– 49.9	2	—4	— 8	32
30– 39.9	5	—5	—25	125
	N = 50		Total: —79	Total 319
			Grand total: —57	

Then, next to each interval, we tally or mark each score that falls within the interval and total the number of such tally marks in the frequency column. This shows the frequency with which people made such scores in our group of 50, and since there is one tally mark for each person, the

frequency column must add up to the number of people tested, in this case 50.

Since the idea here is to short-cut a lot of awkward arithmetic, we have first grouped our 50 scores into nine equally spaced class intervals. If we had to guess where the average score for the 50 cases would fall, we would pick the class interval that had the greatest number or frequency of scores in it. We would also choose the exact middle point within this interval as a handy single number. The middle point of the interval where the largest number of scores is found is 85.

From now on we can simplify more, by using an arbitrary series of steps in place of the interval. We have guessed that the average will fall in the interval 80 to 89. The interval 90 to 99, containing three scores, is one step above this interval within which we guess the average will fall, so we assign the value of +1 to the interval 90 to 99. The next highest interval is 100 to 109, so we assign it a value of +2. Similarly, the interval 70 to 79 is one step below the interval containing the guessed average, so we give it a value of —1. In the column marked "Deviation," we have put in these arbitrary values. Now we treat these arbitrary values as if they were test scores and multiply across from the frequency column to the deviation column, keeping algebraic plus and minus signs, and entering separate products in the Frequency-Times-Deviation column.

This multiplication step is necessary to give proper weight to the scores with various frequencies. If you will look back to our list of 50 test scores, which were added on page 46 as the first step in getting the average, this weighting will be clearer. In that list, a score of 87 was made by 3 students, and a score of 110 was made by 2 students. In our addition, it would make no difference if we added 87 3 times, once for each student, or multiplied 87 by 3 and then added this product into our total only once. In our arbitrary scale, for example, the value of +3 is assigned to the five cases making scores in the real score interval of 110 to 119. These five cases must all be taken into account in getting the algebraic sum of our arbitrary scale, so we do it by multiplying the arbitrary value by the number of cases which have been assigned that arbitrary value.

If our real average were equal to the mid-point score of the interval within which we estimated the average to be, the plus and minus values resulting from this multiplication step would cancel each other out. But in our examples, the plus values in our frequency-times-deviation column are less than the minus values by a net of —57. If we divide this net of —57 by 50, the

number of students in our sample, we get the average of our arbitrary scale of +3 through 0 to —5. This average of the arbitrary scale is —1.14.

Recalling the arithmetic of interpolation, we now want to convert this arbitrary scale average to the raw test scores of our class interval scale. Thus —1.14 of an arbitrary step of one equals —1.14 times ten of a scale of ten, which is the scale we used in our class interval steps on the left. Remember that in our class interval scale of ten, we used the exact middle score of 85 as the best estimate of the average. We were out of line by —1.14 times ten from this midpoint when we finished working the average of our arbitrary scale, so now we can get the real average by adding —1.14 times ten to 85, the midscore of the interval in which we guessed the average would fall. The resulting true average is 85 — 11.4, or 73.6. Earlier, when we added all 50 scores and divided by 50, the average was 73.2. This illustrates the fact that the error resulting from the short method of calculating the average is usually quite small.

Now we want to calculate the standard deviation of our 50 scores. We go back really to get the standard deviation of our arbitrary scale of 3 through 0 to —5, after which, by the same principle of interpolation, we can convert from our arbitrary scale to our scale of test scores in class intervals. Another way of describing the process is to say that we will find the sum of the squared deviations from a guessed average, divide by the number of cases, and then make a correction for the difference between our guessed average and our actual average. We can also use our arbitrary scale of plus and minus unit deviations in this process.

We must square the deviations from the average of the arbitrary scales, weighted by their frequency of occurrence, to get away from negative signs. This has been done in the frequency-times-(deviation squared) column of the example. The total is 319; the average is 319 divided by 50, or 6.38. But now we must bring in the —1.14, or the real average of the arbitrary scale, which we can do by squaring it and subtracting it from 6.38. We use the square of —1.14, since we are working with the sum of squared (deviations from the average). The value we now have is the average squared deviation of the arbitrary scale. If we take its square root we have the standard deviation of the arbitrary scale, 2.2540. But each step in the arbitrary scale contains only one unit, while each step in the class interval scale contains ten units. Therefore, we multiply our arbitrary scale standard deviation by 10 to get the standard deviation of the class interval scale—$2.2540 \times 10 = 22.54$.

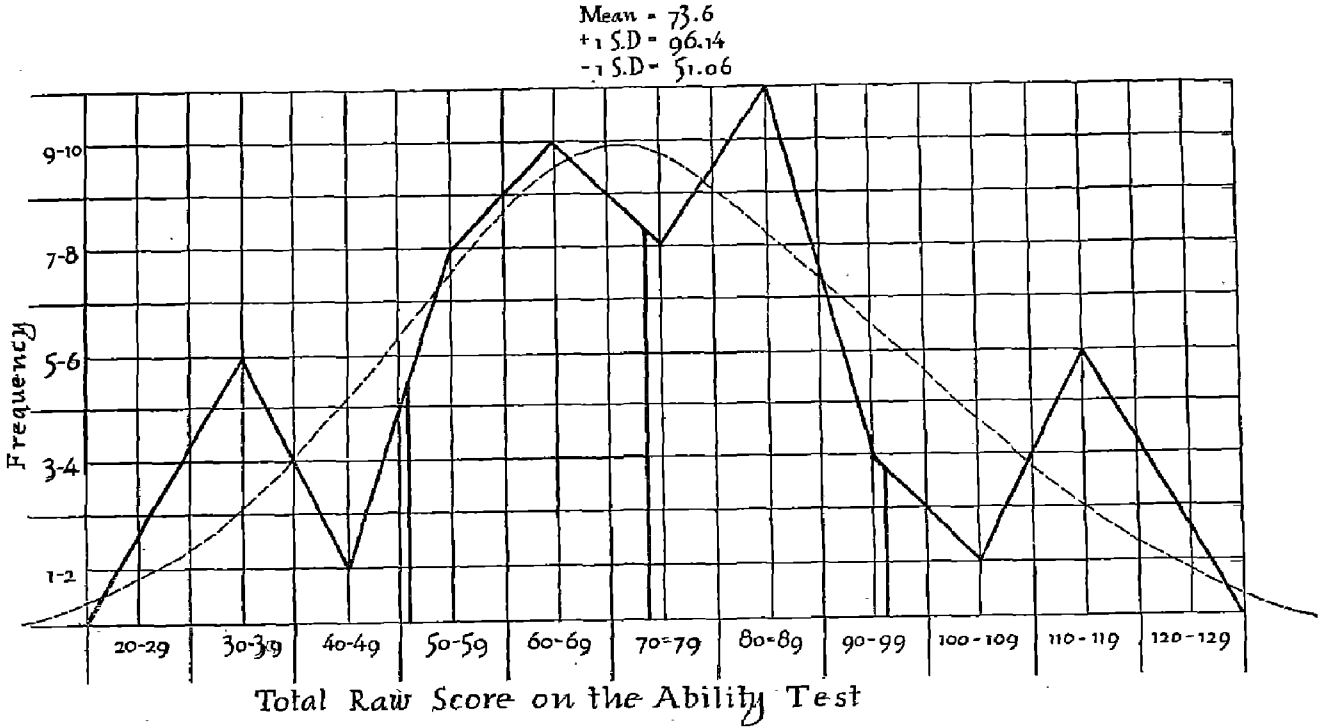

Mean = 73.6
+1 S.D = 96.14
-1 S.D = 51.06
9-10
7-8
5-6
3-4
1-2
Frequency
20-29
30-39
40-49
50-59
60-69
70-79
80-89
90-99
100-109
110-119
120-129
Total Raw Score on the Ability Test

FIGURE 3

Graphic Presentation. The use of figures or charts sometimes makes statistical material clearer. Thus we may "plot" our 50 scores as you will see in Figure 3 on Page 56. Lay off equal spaces on a horizontal line, one for each class interval that we used for our 50 scores, and label each equal space with the score limits of its class interval. Then add the next highest and next lowest intervals to this line, even though nobody makes scores in these two intervals.

Now lay off equally spaced intervals on the vertical line and write an ascending series of numbers of cases or frequencies opposite each space. In this example we have let each vertical space equal two people. It is conventional to plot the number of people making scores within a given class interval over the center point or middle point of the interval in such diagrams, and we have done so here. Five students make scores in the interval 30 to 39; 2 students make scores in the interval 40 to 49; and so on.

If these points as plotted are joined by straight lines, you have a *graphic frequency distribution.* For reference points we have drawn in vertical lines over the average score of the 50 cases; and over the outer score boundaries of plus one standard deviation and minus one standard deviation. If we had an endless number of high-school seniors, the jagged peaks on this graphic distribution would smooth out to make a curve similar to the smooth curve shown in the figure in broken lines. This smooth curve is the so-called "normal curve" of distribution of a set of measures.

Percentile Rank. This is another valuable statistical tool. Let's look again at our 50 scores grouped in their ten class intervals. The problem now is to study a student's location on the test relative to the group with which he was tested. On page 46 in Table 2, where the scores for High School A were laid out in high-to-low order it is easy to see that the student scoring 119 ranks first. We now want to set up this rank order in more general terms for larger groups of students. This is done by working out percentile ranks attached to the various raw scores. The percentile ranks indicate the percentage of people tested who made scores below and above a specified raw score.

In Table 8 we have simply "piled up" or accumulated from bottom to top the numbers of students making scores within the specified class intervals. From now on we are concerned with the test scores below which various proportions or percentages of students fall. Earlier we said that the median test score was the score below which exactly 50 per cent or one-half of the students fell. With slight rephrasing, the *lower quartile score* was the score

TABLE 8

Interval	Frequency	Cumulative Frequency
110–119.9	5	50
100–109.9	2	45
90– 99.9	3	43
80– 89.9	10	40
70– 79.9	7	30
60– 69.9	9	23
50– 59.9	7	14
40– 49.9	2	7
30– 39.9	5	5
	N = 50	

which exceeded the scores of only 25 per cent of the students, and the *upper quartile score* was the score dividing the top 25 per cent of the students from the lowest 75 per cent of the students. As you can quickly see, it is possible to get a score point below which any given percentage of students will fall, *relative to the group tested.*

As you can also see, a student's raw score may make him better than 75 per cent of the group, even though such a raw score might represent only 60 per cent of the "perfect" or total possible score on a test. This is the difference between relative standing in a group and "percentage of perfection" in performance. Nearly all teachers assign classroom grades on the basis of percentage of perfection in class work and examinations, even though there is no evidence that the teacher can truly say what a "perfect" performance would be. When grade averages for all students are arranged from highest to lowest, the grade average can tell *relative rank* within the total group.

Now let's find the test score below which 50 per cent of our 50 students fall. Fifty per cent of 50 equals 25. Counting up from the bottom of the distribution we count 23 students making raw scores through the interval 60 to 69. There are 7 students in the next highest interval, but to get our 25 students, we only need to use 2 of these 7 students or fractionally 2/7 of them. Our equivalent class interval, from 70 to 79, has 10 score steps and by interpolation we need only 2/7 of those 10 scores, which is 2.86 score steps. If these 2.86 score steps are added to the lower boundary of the class interval, our desired score, below which 50 per cent of the students fall, is a score

of 72.86. Using the same reasoning, find the upper quartile point, or the score below which 75 per cent or 37.5 students fall. You should get 87.5 as this score point.

For the next table we have calculated for our two groups of 50 and 40 high-school seniors the raw scores below which the specified percentages of students fall.

TABLE 9

Raw Score High School A	Per Cent Falling Below	Raw Score High School B
119	99	131
109	90	93
89	80	84
85	70	78
79	60	74
73	50	69
67	40	66
61	30	61
54	20	35
39	10	26
31	1	21

Now you can see more clearly how the students in these two schools differ. A student in High School A who makes a raw score of 79 is better than 60 per cent of his fellow students. But if he went over to High School B, this same raw score would make him better than about 71 per cent of the seniors in that high school.

These relative rankings are called *percentile ranks*. They convert absolute test scores to a more meaningful value of relative superiority or inferiority. And they do away with the difficulty of interpreting a student's performance on tests scored differently.

For example, we don't know much about John if we have the following raw scores: 12 out of 37 on a diagnostic test in reading comprehension; four feet six inches in height; 131 out of 210 on a test of scholastic aptitude; 111 out of 200 on a test of clerical aptitude; and 3 minutes 47 seconds on a test of manual dexterity. But if we have these same measures on John and on many more students of John's same age and background, we can get percentile scores on John as follows: He exceeds only 30 per cent of a similar group in reading comprehension; he is taller than 52 per cent of his group; he is better

in scholastic aptitude than only 31 per cent of his group; he is better than 68 per cent of his group in a test of clerical aptitude, and he is more rapid in manual dexterity than 92 per cent of the group. Now we can see more clearly John's strong and weak points and we can therefore be of more help to John.

Norms and Conversion Scores. Earlier in this chapter we talked about scores being "in line" or "out of line" with expectations. With these percentile scores in mind we can approach this problem again. Percentile scores are what the statisticians call "norms." All well-constructed tests are sold with norms of some kind for purposes of converting absolute test performance to a rank relative to some group of people who have previously been tested. Thus norms may be considered as *conversion scores.*

But note that *norms* are different from *standards.* Norms tell how well the student did relative to the group with which he is being compared. Standards tell whether or not he reached the minimum level set as representing the required amount of mastery or skill.

There are several kinds of norms, in addition to percentile scores. Two of the most frequent are *age norms* and *grade norms.* The typical or *average* child of a given chronological age or in a given school grade will make a certain number of correct responses to the items of a test. If John at age 12 gets as many correct items as the average child of age 16, John's relative age standing on that test is equivalent to that of an average child of age 16. If Mary in grade 9 gets as many correct responses as the average child in grade 11, Mary's relative grade standing on that test is equivalent to that of the average child in grade 11.

Also available with some tests are *standard score norms.* They need a word of explanation here. We have just mentioned converting a series of unrelated measures on John to percentiles so that we can see his relative standing in several characteristics. It is also possible to consider John's measures as deviations from averages on those same measures, with the averages calculated from a known group of students. John's deviation from the group average may then be expressed as a fraction of the group's own variability as seen in the standard deviation for the group. Thus: John's score minus the average score for the group, divided by the standard deviation of the group, equals John's standard deviation score, or "standard score" as it is more frequently called. This standard score will be plus or minus, depending upon whether or not John deviates above or below the average of the group. To

avoid these plus and minus values in standard scores, it is possible arbitrarily to make the absolute score average of the group equal to 50 and the standard deviation of the group equal to ten.

Such standard scores, which are frequently published in test manuals, are not to be confused with percentile scores. For example, a standard score of 60 means that the student is one standard deviation above the group average. In a normal distribution, one standard deviation above the average includes 34 per cent of the cases above the average. This 34 per cent, plus the 50 per cent at and below the average, accounts for 84 per cent of the cases. Therefore a score one standard deviation above the average exceeds the score of 84 per cent of the people and is equivalent to a percentile score of 84.

The simple and basic problem in all this is often overlooked: Where did the test maker go to get his sample of typical or average students of various ages and grades? Or, in the case of percentile and standard score norms, where did he get his sample of people from whom he calculated his percentile scores or standard scores?

Therefore, one of the important things to consider in buying any test is the norms you will find accompanying the test. They must be norms derived from samples of people *comparable to* the students on whom you plan to use the test; they must be norms derived from samples of people with whom your students may *sooner or later want to compete;* they must be norms derived from samples of people with whom your students may *sooner or later have to compete.* Let's look at these points in greater detail.

We may want to know how much of a certain school subject John has learned *relative to* or *compared with* other students who, like John, are in grade 10 at about the age of 16. Therefore, if we use a standard achievement test, it must have *norms* derived from a *sample* of students who have had about as much training in the subject as John has had and who are in grade ten at about the age of 16. It wouldn't mean much to compare John with high-school seniors or college freshmen, since he would probably look poor in such a comparison in any subject. Nor would we compare him with seventh graders, since he would look too good in such a comparison. Likewise in a test of scholastic aptitude, measuring amount of intellectual development, we must be sure that our test has been given to people like John in age, background, and experience, if we want to see how much above or below the average John falls. In choosing a test, then, one question is this: Does it have norms appropriate for the kinds of students I want to

test? If not, and if it is in other respects a good test, can I give it to a large enough *sample* of my students (50 to 100 or more) so I can make my own percentile ranks by the process outlined above?

Prediction. In regard to future competitive demands on John, what are we up against? Suppose John is to be graduated in June and wants to go to college in September. Should we compare his scholastic aptitude with his graduating class or with college freshmen to see if he's above or below average for college competition? He should be compared with college freshmen because he wants to compete with them and *because his present amount of scholastic aptitude is pretty much of a fixed quantity.*

Suppose further that he wants to be an engineer. We would then compare his achievement in mathematics and science with these achievements as they are found among high-school seniors. John may be capable of learning more math or science, so we don't say his present achievement in these two fields is necessarily his final achievement, but we do say that he is a bad risk if his present achievement is *too far below* the average of the group with which he wants to compete.

The same kind of example can be worked out in fields such as clerical work, trade training, or personality measurement. Consider an example from the field of occupational interest measurement. John says he wants to be a salesman. In other words, he's interested in this occupation at about the age of 17 or 18. Now if the broad occupational interest patterns that will be his all through life are pretty well formed by this age, he can safely be compared to successful *adult* salesmen to see if his measured occupational interests are truly like the interests of such workers. But if it were true that his interest patterns were not yet crystallized, we simply could not test for their similarity to the interests of successful adults, no matter how good a test we might have.

Therefore, we may expand upon this point even further. To use tests, one must know something about the rates of growth of various kinds of behavior in individuals to determine whether testing will yield intelligible results. To select tests, one must be aware of the importance of available norms, in order to see students not only *as they now are* relative to others like them, but also *as they may be* relative to others whom they want to be like, or with whom they want to compete.

It is historically interesting that tests, used at various age levels and in various situations, have given us much important information about rates of

growth of behavior, and about the amounts and kinds of behavior that distinguish one group of workers or students from other groups of workers or students. We'll talk about some of this information later on.

The Coefficient of Correlation. We come now to one of the few remaining statistical measures we shall deal with in these pages. In Chapter 2 we knew just two things about each student—his tested ability and his average school grade. We could know an almost endless number of *pairs of things*—height and weight; father's income and scholastic aptitude; social adjustment and participation in extracurricular activities; color of eyes and color of hair; condition of home neighborhood and number of times sent to the principal's office; flabbiness of handshake and "strength of character."

Some of these things would seem to be co-related (correlated), or, saying it another way, the two things would vary together among a lot of individuals. The taller a person is, the heavier he is; the better his social adjustment, the more activities he'll take part in; the "brighter" he is, the better grades he'll get. We can't say he is taller, *because* he is heavier, or he's heavier *because* he's taller, since there is no necessary cause-effect relation between height and weight in that sense. However, we can say that in a group of people, taller people also tend to weigh more, and conversely, shorter individuals tend to weigh less. Of course, the relation isn't perfect, since the tallest person isn't always the heaviest nor the lightest person the shortest, but as we go up and down the scale of height among a group of people, we find ourselves also going up and down the scale of weight at the same time.

We can illustrate this idea in another way, by considering a common belief about human behavior. We are all familiar with the saying that fat men are always jolly. Let's assume that we can label each person in a group of 20 men as fat or thin and also as jolly or not jolly. We can set up a diagram to guide our labels:

	not jolly	jolly
fat		
thin		

To the right of the vertical line we will locate all men who are jolly; men who are not jolly will appear to the left of the vertical line. Above the horizontal line we will locate fat men, and below it thin men. If our common belief were completely true, and if we had ten fat men in our group, they

would also be ten jolly men. If the other ten men were thin, our common belief tends to imply that they would not be jolly. Thus our diagram would be filled in as follows:

	not jolly	jolly
fat		𝍸 𝍸
thin	𝍸 𝍸	

Now actually we realize that some fat men are jolly and some are not jolly. Also some thin men are jolly and some are not jolly. So our diagram probably would be nearer the facts if it looked like this:

	not jolly	jolly
fat	𝍸	𝍸
thin	𝍸	𝍸

This means that being jolly or not being jolly is characteristic of fat men and thin men alike, without being related to their fatness or thinness. Or, jolliness and weight do not seem to vary together. This type of diagram is the simplest way of seeing how two facts about each individual in a group may be related. There are many popular beliefs about human behavior which could be diagrammed this way: people with close-set eyes are dishonest; people with flabby handshakes are weak-willed; people with high foreheads are intelligent. In every case of these common beliefs the chances are that the two facts will turn out to be completely unrelated for any group of people selected at random.

However, many pairs of facts about each individual in a group will vary together to some degree, and statisticians have devised an index to measure this degree of relationship between two facts or human traits. The index is called the *coefficient of correlation* and it ranges within a scale of values from —1 through 0 to +1. We can start with two traits that tend to be related: ability and achievement. Our simplest diagram for this relation among 20 high-school seniors might be as follows:

Ability \ achievement →	below average	above average
above average	////	𝍸 //
below average	𝍸 /	///

Here 7 students who are above average in ability are also above average in achievement; while 4 more students who are also above average in ability fall

below average in achievement. Of the 9 students who are below average in ability, 6 are also below average in achievement, while 3 are above average in achievement. Some degree of relationship exists between these two traits among this group of students.

Since statistics must serve to summarize facts about human beings, the job is to index as simply as possible the *degree* of relationship. At the same time it would be interesting to see more clearly how far above or below the respective averages our individual students actually fall. For example, if one student is at the top of the group of 20 in ability, but is just barely above the group's achievement average, he will appear in the upper right-hand segment of our diagram. Yet he may represent a more serious problem of under-achievement than the student just barely above average in ability and also barely below average in achievement.

To make the degree of relationship stand out more clearly, we need only set up more refined measuring units for ability and achievement than the mere statement of above- or below-average standing. This can be done by using what is called the scatter-diagram which we saw in Chapter 2, Figure 1 (page 26). The scatter-diagram has class intervals laid off vertically for the ability measure, together with class intervals laid off horizontally for the achievement measure—in this case grade averages. For each of our 50 students in High School A, we make a tally in the cell opposite the interval in which his ability score falls and under the interval in which his achievement score falls. Our 50 students are then scattered through our diagram.

We have reproduced the information from Figure 1 in Figure 4 (page 66) but doubled the size of the class intervals as they appeared in Chapter 2. This cuts the number of class intervals in half.

Notice that we have added up, at the right and along the bottom the frequency of occurrence of scores in each class interval. These frequencies along the bottom are for the measure of achievement—school grades; the vertical frequencies on the right are for the measure of scholastic aptitude—test scores.

We have also drawn two pairs of heavy lines through the body of our diagram. One of these is drawn at the boundaries of the interval in which the average point of our achievement scale falls. At each ascending class interval of ability we have calculated the average achievement of all students within the ability interval. These averages appear as indicated up the right-hand edge of the chart. The five students making test scores from 30 up to 40

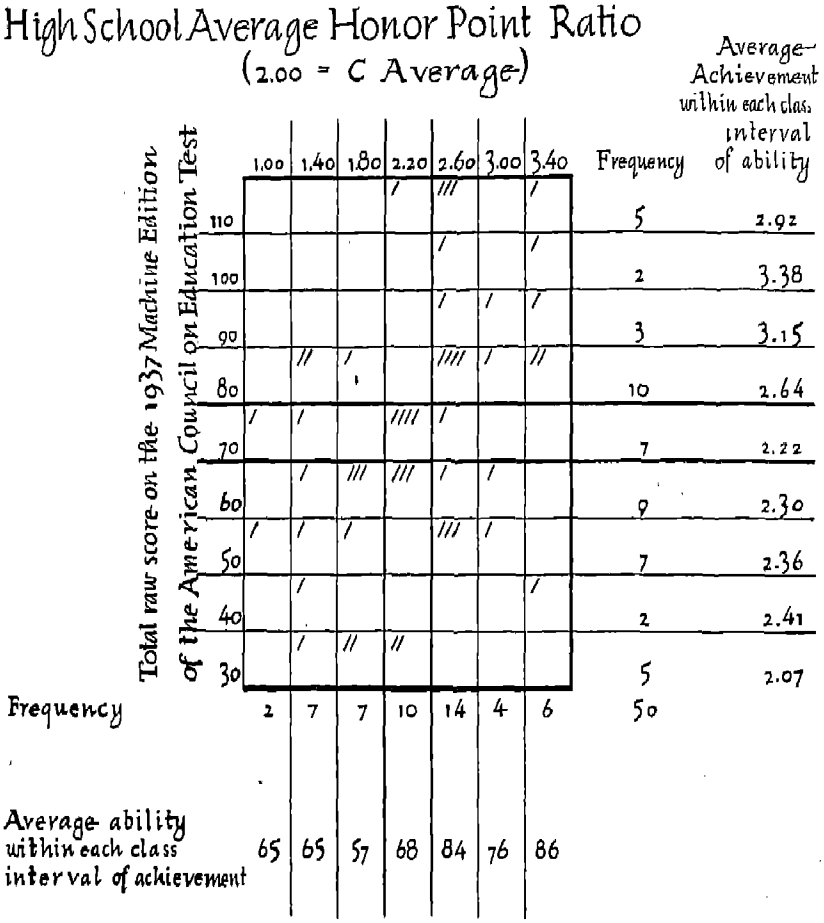

High School Average Honor Point Ratio
(2.00 = C Average)
Total raw score on the 1937 Machine Edition of the American Council on Education Test
1.00 1.40 1.80 2.20 2.60 3.00 3.40
Frequency
Average Achievement within each class interval of ability
110 5 2.92
100 2 3.38
90 3 3.15
80 10 2.64
70 7 2.22
60 9 2.30
50 7 2.36
40 2 2.41
30 5 2.07
Frequency 2 7 7 10 14 4 6 50
Average ability within each class interval of achievement 65 65 57 68 84 76 86
Average of high school honor point ratio 2.50
Standard deviation of high school average honor point ratio .65
Average of American Council on Education test score 73.6
Standard deviation of American Council on Education test score 22.54

FIGURE 4

make an average grade of 2.07; the two students making test scores from 40 up to 50 make an average grade of 2.41; and so on through each ability interval. At each ascending class interval of achievement we have calculated the average ability of all students within the achievement interval. These averages appear as indicated from left to right at the bottom edge of the chart. The two students making grades from 1.00 up to 1.40 make an average test score of 65; and so on through each achievement interval.

By simply inspecting these averages up the right-hand margin and along the bottom margin we can see a general tendency for the students with better ability to get the higher grades. Conversely the students who get better grades tend to have higher ability. However, the co-relation between these two traits is not evenly spaced or uniform in progress from the low to high ends of our traits. Notice that the five students in the top ability level make an actual grade average somewhat lower than the two students in the next-to-the-top ability level. It would be interesting to study these five top-ability students as possible underachievers.

The very practical value of any index of co-relationship is that we may use it to predict future behavior from past behavior, among groups of people similar to those we have studied. Suppose that our scatter-diagram represents an ability test taken at the beginning of the senior year plotted against grades earned during that entire year by our 50 seniors. Now suppose we want to know what grades to expect from our next senior class, also numbering 50 students. We can know at first only that half of them will be above average and that the other half will be below average. But we can't be sure which students will fall above or below the group's average. But suppose we give our new senior class the ability test we used on the old class. From our scatter-diagram we can see that in the old class 21 of the 27 students who were at or above average in ability were also at or above average in grades. Then we have 21 chances out of 27, or a 78–22 chance, of predicting above-average grades for one of our new seniors who tests above average in ability.

At the other end of the scale, 13 out of 23 of our old seniors who were below average in ability were also below average in grades. Then we have 13 chances out of 23, or a 57–43 chance of predicting below-average grades for one of our new seniors who tests below average in ability.

In this very crude illustration we can see the general idea of increasing our efficiency in predicting what a student will do. In general we predict either from past behavior, or from a small sample of present behavior (such

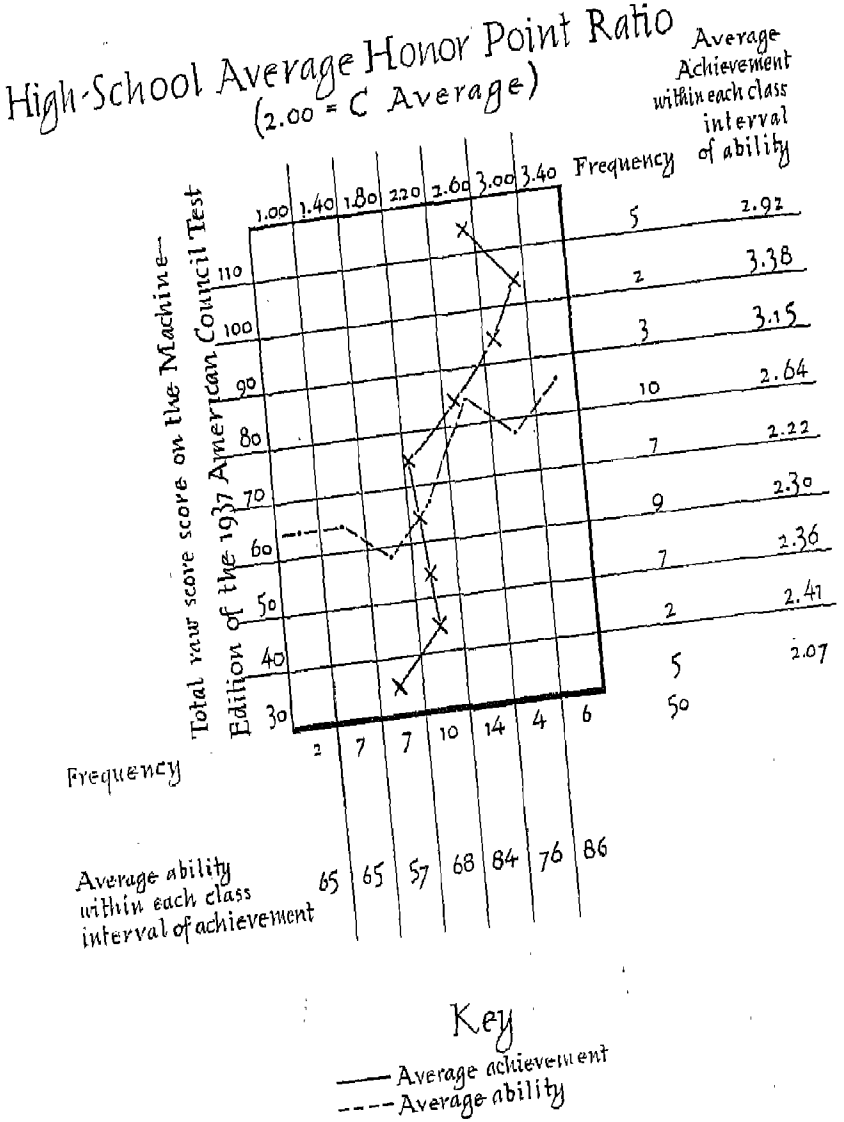

High-School Average Honor Point Ratio
(2.00 = C Average)
Average Achievement within each class interval of ability
Frequency
1.00 1.40 1.80 2.20 2.60 3.00 3.40
5 2.92
2 3.38
3 3.15
10 2.64
7 2.22
9 2.30
7 2.36
2 2.41
5 2.07
50
Total raw score on the Machine-Edition of the 1937 American Council Test
110 100 90 80 70 60 50 40 30
2 7 7 10 14 4 6
Frequency
Average ability within each class interval of achievement
65 65 57 68 84 76 86
Key
Average achievement
Average ability

FIGURE 5

as a test) to a larger sample of behavior that will be measured at some future date. But notice that we are still not too good as predictors, and the reason for this may partly be seen in Figure 5 (page 68). Here we have plotted the average achievement within each ascending class interval of ability and connected these points with straight lines. We have also plotted the average ability within each ascending class interval of achievement and connected these points with broken lines. The figure is based on the same scores as our other scatter-diagram. It illustrates the point that variations in either trait are not accompanied by equivalent and uniform variations in the remaining trait. These deviations from expected performance, as in our five top-ability seniors, are due to several factors; measurement errors in our test which tend to give incorrect relative standing to each and every student; measurement errors in our grading systems which also tend to give incorrect estimates of achievement; variations among individual students in work habits, motivation, or past preparation; and many other subtle aspects of human behavior.

But now assume that such "error" factors did not enter into our measurement. The diagram below gives an example of perfect prediction in arbitrary units of measuring traits "a" and "b."

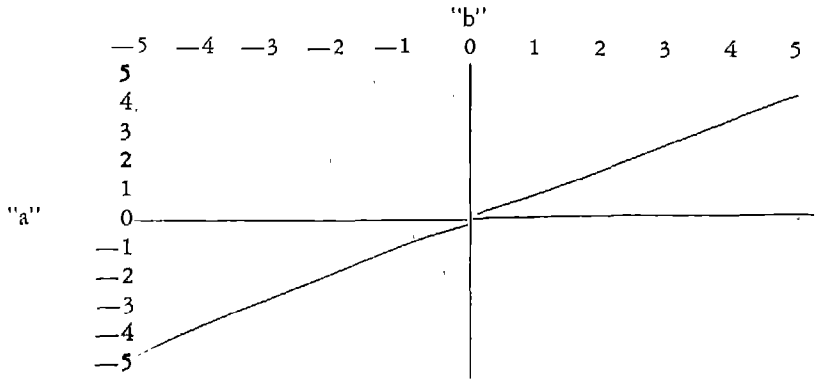


FIGURE 6

Along the line from the lower left-hand corner, through the meeting place of lines drawn through averages at the zero points and to the upper right-hand corner we will find every pair of scores for an infinite number of people, *if* an increase of one unit in trait "a" is accompanied by an increase

of one unit in trait "b." There is no irregular or halting progression of increases as in the comparable lines on Figure 5.

Consider two traits now that are unrelated or that vary independently of each other, as in our illustration of fat men being jolly. In such a case our pairs of scores will distribute themselves through the cells of our diagram as follows:

		"x"										
		−5	−4	−3	−2	−1	0	1	2	3	4	5
	5					2		2				
	4					3		1	2			
	3			3	1	1		2	2	1		
	2		1	2	2	8		8	1	2	2	
	1	1	2	3	8	8		10	6	4	1	1
"y"	0											
	−1		2	6	5	9		8	6	5	2	1
	−2	1	2	1	3	6		7	3	1	1	1
	−3				2	3		3	1	1		
	−4				1	2		2	1			
	−5					2		2				

FIGURE 7

The line that now joins the averages of trait "x" at each ascending class interval of trait "y" will simply be the line through the average of trait "x." The line that now joins the averages of trait "y" for each ascending class interval of trait "x" will simply be the line through the average of trait "y." Knowing a person's standing in either trait tells us nothing about his standing in the remaining trait; no co-relation or co-variation between traits "y" and "x" exists.

The formula for the coefficient of correlation gives us first an index of the tendency for pairs of measures to "drift" diagonally across our scatter-diagrams from lower left to upper right. In the second place the formula, together with its derived predictive formulae, takes into account the "error" factors that cause certain individuals to deviate above or below the diagonal "drift" of the pairs of scores for the group.

It will not be necessary for you to calculate these types of coefficients of correlation very often, since it usually requires at best 30 or more students to be a stable index; nor have we attempted to explain the operations in

index in using tests. This may be seen in two ways. The first list gives verbal descriptions of correlation values:

0.80 and up	very high correlation
0.50 to 0.80	substantial correlation
0.30 to 0.50	some correlation
0.20 to 0.30	slight correlation
0.00 to 0.20	practically no correlation

The second list shows the predictive efficiency of coefficients of correlation of various sizes:

TABLE 10

Correlation Coefficient	Percentage Increase in Predictive Efficiency	Chances in 100 of Predicting at-or-above, and below, Average in Future Behavior
0.00	0.0%	50–50
0.10	0.5%	50.25–49.75
0.20	2.0%	51–49
0.30	5.0%	52.5–47.5
0.40	8.0%	54–46
0.50	13.0%	56.5–43.5
0.60	20.0%	60–40
0.70	29.0%	64.5–35.5
0.80	40.0%	70–30
0.90	56.0%	78–22
0.95	69.0%	84.5–15.5
0.98	80.0%	90–10

These figures will be a surprise for people who are highly optimistic about tests. Even those tests showing high correlations with the individual's later performance have a noticeable margin of error in prediction.

Rank Order Correlations. Here we will illustrate a simpler method of studying co-variation, particularly since this method may be used with less than 30 cases. We have not attempted to describe the more precise and elaborate correlation procedures. But, while statisticians have demonstrated certain sources of error and restriction in this technique, for practical purposes it can be handled conveniently in the following way:

List the students in order of rank on the first measure, such as a finger dexterity test scored in seconds Then enter your second measure, such as

shop grades, opposite each student's name. Then rank the shop grades from high to low. We'll try it with 15 students in this table.

TABLE 11

Name	Score in Seconds on Dexterity Test	Rank on Test	Shop Grades in Per Cent	Rank on Shop Grades	Difference in Ranks	Squared Difference
James Roberts	324	1	94	1	0	0
Frank Applegate	330	2	89	3	—1	1
Taylor Huff	352	3	74	10	—7	49
Jackson Quilk	367	4	90	2	2	4
Adams Wabash	375	5	86	5	0	0
Louis Unos	384	6	70	11	—5	25
Stanley Jacobson	390	7	87	4	3	9
Rasmus Gordski	401	8	67	13	—5	25
Asker Watt	412	9	65	15	—6	36
Solomon Kingsley	422	10	80	7	3	9
Harry Chesters	429	11	66	14	—3	9
Ralph Barney	440	12	75	9	3	9
Istan Bull	470	13	84	6	7	49
Benjamin Cripps	481	14	68	12	2	4
Armstrong Legg	516	15	77	8	7	49

The formula involves the differences between each student's paired ranks and the squares of these differences:

$$\text{Correlation} = 1 - \frac{6 \times \text{sum of } D^2}{N\,(N^2 - 1)}$$

D = the difference in each student's pair of ranks, the test and the class grades, and N = the number of students involved, or 15. Squaring each difference in these two ranks, and adding up these squared differences, we get 278. Thus:

$$\text{Correlation} = 1 - \frac{6 \times 278}{15\ (224)} = 1 - \frac{1668}{3360} = 1 - .4964 = .5036.$$

By referring to our earlier list on page 71, this appears to show a substantial correlation between the dexterity test and shop grades.

Basic Principles of Measurement

Now that we have some familiarity with averages, measures of variability, and measures of correlation, it is possible to consider several basic ideas in making and using tests.

1. A test is never anything more than a short, standardized sample of one kind of behavior in an individual. It is short because it will take only a few minutes or at the most a few hours to administer. It is standardized because the conditions under which it is to be given are carefully prescribed, and the expected results have been statistically demonstrated in the process of constructing the test. But it is still a sample. A crossword puzzle or a jigsaw puzzle is potentially a test; a boy's tryout for the school football team is a test; the first period on a new job is a test; a girl's first date is a test; the teacher's class examination is a test.

Life is full of test or tryout situations, in which a shorter or longer sample of a person's behavior is observed. On the basis of this observation, some kind of judgment is made about the person by the observer. In our examples, crossword or jigsaw puzzles are recreational, and we usually say simply that the person is good or bad in such activities. We might make a deeper judgment and say the person shows good vocabulary skills in the speedy way he finishes the crossword puzzle; we might say that good space perception is shown by the person who is good with jigsaw puzzles.

For the boy trying out for the football team, the coach's judgment after observing him in practice is a most vital judgment. The coach is deciding whether or not the boy has the complex behavior patterns that, with training, will get him on the first team. These patterns include physique, motor co-ordination, strength, team spirit, "guts," speed, and "football brains." The coach sums up his judgment on this complex pattern by saying he's good material or a fair prospect or, emphasizing only one part of the complex, too light.

Most of our life-situation tests involve quite complicated types of behavior, which act together to produce some more unified result. School achievement, for example, involves scholastic aptitude, motivation, study habits, subject-matter skills, personality, freedom from worry, and other factors all operating together in the individual to produce grades as a measure of school achievement.

But the psychologist has found that he can get farther in studying human behavior by testing for the separate units of behavior which, when operating

together, produce some result in complicated life situations. Therefore, he tries to test for unit traits, or he tries to get isolated measures, in his study of the individual. He does this by taking *samples* of behavior in his tests, in the same way that we test a sample of grain or match a sample of dress goods, or sample a piece of newly-made pie.

Earlier in this chapter we pointed out that we can never study *all* the people in a population; we must always study samples or smaller groups of people. Now we are talking about a *sample* of a certain kind of behavior in one person as a basic idea in testing. These two phases of sampling must now be tied up as one idea. In testing we are sampling a certain kind of behavior as we find it to exist among individuals in a sample of all the people in the world who possess some amount of that kind of behavior. And, to repeat another earlier idea, we'll probably find that very few people in our sample have a small amount of it; very few people have a lot of it; and most people have a fair amount of it.

When we talked earlier about *percentile scores* we were talking about a statistical method of saying where a person ranked, relative to other people, in regard to the amount of the trait being sampled by the test. When we discussed the *average* and the *median,* we were discussing statistical methods of locating the usual or typical amount of the trait to be found among a group of people. When we discussed the *standard deviation* and the *quartile range* we were discussing a statistical method of indicating how people *vary* in their possession of the trait. In discussing the *coefficient of correlation* we considered a statistical method of stating how the possession of two traits will vary together among a group of people, and how well we can predict the amount of one trait if we know the amount of the other trait.

2. Another principle: How can we tell if our test is sampling a trait accurately? How can we make sure that we haven't got a yardstick that stretches? In measuring height or weight we usually assume that our scales and yardsticks are stable, accurate instruments and accept the measurement as correct or accurate—provided the person doing the measuring could see straight at the time. Human behavior, however, is a little more difficult to measure than human structure. Therefore, the test maker must study the accuracy of his test. And he does it by applying the logic of correlation coefficients to his test scores.

He says, in effect, that if this test can predict itself with a very high degree of predictive efficiency, it must be measuring *something* accurately.

In other words, if the students are ranked from high to low in much the same rank order when tested two separate times on this test, it must be accurate. This would mean that the student's first score would be an excellent prediction of his second score. Thus, the *coefficient of correlation* can be used as the index of the *accuracy* or *reliability* of the test. It means that the chances are overwhelmingly in favor of a student's making the same standing *both times he takes the test,* relative to other students tested with him each time. It is only logical to expect that two identical measurements made independently of the *same* unit of behavior should be closely similar, or in statistical terms, highly correlated.

Since the test maker can't always give his test twice to exactly the same group of people, statisticians have worked out a time-saving device whereby the test maker can split his whole test into two equal pieces and correlate the pairs of scores made by a group of people on each half of the test. In the descriptive manuals that accompany the tests when they are purchased, these reliability coefficients of correlation will be named as follows: test-retest reliability; corrected odd-even reliability. "Test-retest" means that the whole test was given twice; "corrected odd-even" means the test was given once, broken in half, and then corrected back to its original length by a special formula.

There is no excuse for buying a test whose reliability coefficient is less than a correlation of .85. As a matter of fact, for individual work with individual students there are plenty of good tests with reliability coefficients of .90 and up.

Another phase of the problem of reliability can be viewed this way: If we tested a student an infinite number of times with the same test and under the same conditions, what scores would he make? He would not make the same score every time; his scores would vary to some extent and if we averaged all of them we would have a very stable measure of his performance. The more reliable our test is, the smaller would be the range in which his repeated scores would fall. So our reliability value can tell us not only how consistently the individual will maintain the same relative standing among his group, but also how small a range of variation he will show within himself on repeated testings.

3. The next basic idea grows naturally out of the first two discussed above. We are sampling a unit of human behavior, and we can measure it accurately and reliably if our sample is good enough. But now we must

know what it is we are measuring and *what it means* in the larger behavior of the person in whom we measure it. Again in regard to height and weight, we don't worry much about what it is or what it means. It's just height and weight! However, in measuring human behavior, *how do we know* this test is a good test of intelligence or that test is a good test of emotionality or another test is a good test of vocational interests?

Logically a test in mathematics or chemistry or English or typing speed isn't hard to name; the meaning of such a test is clear-cut. We can study its reliability coefficient of correlation to see if it measures *accurately* the knowledge covered in the course of study of the same name. The *meaning* of the test score can be further determined by studying its power to predict what the student will do in more advanced work in the same subject matter.

But with tests not so immediately related to the measurement of accomplishment at the end of the learning period, we are faced with a more complicated problem. Here again the test maker and the statistician may rely heavily on the logic of the coefficient of correlation to help decide how good their test is.

Assume we have three tests: a test of intelligence or scholastic aptitude; a test of clerical aptitude; and a test, as we saw on page 72, of finger dexterity. We have found them to be reliable or accurate. To find out whether our tests have any value or worth, we must locate real-life situations in which the things we call intelligence, clerical aptitude, or finger dexterity are important phases of adjustment or success. Such situations might include later school work, bookkeeping or accounting jobs, and watch repairing. After we have ascertained this, then we must get some measure of the individual's competence in these three real-life situations. Later school grades would be one measure; a count of daily errors in bookkeeping operations or a measure of speed of bookkeeping entries could be another such measure; supervisor's ratings of watch-repairing skill might be collected as still another measure of competence. Each such measure is also in reality a real-life test situation and, as a test situation it is reliable or accurate to some degree, in the same way that a short psychological test is reliable or accurate as we have explained.

Interestingly enough, we might point out that in most studies of tests, the test itself is usually more reliable and accurate than the real-life test situation used as a criterion of success or good adjustment.

If the test scores correlate highly with the criteria of real-life success, the

test means something in predicting real-life success in such areas. The test is measuring some part that is important to the complicated total life situation of later school grades, bookkeeping proficiency, or watch-repairing skill. Such correlations tell us something about the validity or *meaning* of the test and are also to be found in the descriptive manuals that come with tests. Because of the difficulty of getting accurate measures of real-life success, these validity coefficients are usually found to range from about .35 to about .60. So don't be surprised to see validity coefficients published that are considerably lower than reliability coefficients.

Another way to look at a test is to consider it a short substitute for a longer tryout in an actual situation. The validity coefficient really tells how good a substitute a test will be in such cases. If a mathematics test in high school correlates highly with mathematics grades earned in an engineering college, and if a student is low in the high-school test, this test score is certainly a danger signal for further work in mathematics. Together with other low scores, the predictive tests may be substituted for an actual tryout in an engineering college and you may be safe in saying that this student is not likely to succeed in the real-life situation of enrolling in engineering college.

Therefore, to see what a test is measuring, look to see where the test maker turned to find real-life situations in which to validate his test in operation. Then look to see how well his test correlated with his outside criterion of adjustment or success in that real-life situation. These things must be known in determining how good the test is.

In testing for personality or attitudes on current social problems or occupational interests, however, it is not always possible to find a quantitative or numerical measure of such units of behavior in real-life situations. Therefore, it is often necessary to determine the meaning or value of a test in another way, a way that involves one more statistical measure, which we will discuss next.

In regard to personality traits, we speak of people as being "poorly adjusted" or "well adjusted," "shy" or "gregarious," "worried" or "calm," "poised" or "awkward," "introverted" or "extroverted." In attitudes, we talk of "liberals" or "conservatives." In interests we may feel that a person shows the "typical interests of an engineer or a salesman." In other words, we classify people as *types* or in *extreme groups* on the basis of their behavior. Now if the average score on a test of this kind made by one such extreme group is different from the average score made by a group at

the other extreme in regard to the behavior being measured, it is likely to be a good test. The test simply separates the two extreme groups in the same way that their fellow men have already separated them. Sometimes, then, test manuals will mention the power of the test to differentiate defined and extreme groups as evidence of its validity.

Group Differences. We have talked about different scores made by a sample of individuals as measures of their possession of a unit of behavior which is sampled by a test. And we have described some of the statistical methods for summarizing and interpreting these test scores. Now imagine that we have test scores of 1,000 people all mixed up in a large box. We can reach in and pull out 100 of those test sheets and calculate the average for those 100 people. Then we throw the test sheets back in the box, mix them all up again, and pull out another 100 test sheets, calculating this new average. Repeat this process many times, and you will have calculated an average for each batch of 100 test sheets drawn from the box.

Rather than having separate test scores, one now has a set of averages, each of which is based on 100 cases. A frequency distribution of these averages can be made, and as was the case with individual scores one will find very few high averages, very few low averages, and a good many averages that will fall near the master average calculated for all 1,000 students. Then the *average* and the *standard deviation* of these averages may be easily calculated.

Another example may be useful. We calculated the average for our 50 seniors in High School A on the ability test, and found it to be 73.6 (see page 55). But what if we had many other samples of 50 high-school seniors drawn from other schools? Would the averages for these other groups of 50 all turn out to be 73.6? Some would be larger, some smaller than 73.6. But all these averages could be averaged to give us a closer approximation to the average for *all* high-school seniors in the United States, assuming that all high-school seniors could be given this same test. Our group of 50 is a sample of a population of high-school seniors. The averages of such samples will vary or deviate from the true average of the population because of chance factors alone, if for no other reason.

If we have enough samples of our population the averages of the samples will tend to vary in a regular or symmetrical way around the true average for the whole population. The frequency distribution which shows these variations in graphic form will approach the so-called "normal curve."

Statisticians have made careful studies of the properties of this "normal curve," and they know that when measures are "normally" distributed:

(1) About 68 per cent of all measures will lie within the range of: (average minus 1 standard deviation) to (average plus 1 standard deviation);
(2) About 95 per cent of all measures will lie within the range of: (average minus 2 standard deviations) to (average plus 2 standard deviations);
(3) About 99 per cent of all measures will lie within the range of: (average minus 2.6 standard deviations) to (average plus 2.6 standard deviations);
(4) About 99.7 per cent of all measures will lie within the range of: (average minus 3 standard deviations) to (average plus 3 standard deviations).

How can we determine the standard deviation of the distribution of averages of a large number of samples of 50 seniors drawn from the population of all seniors, when actually we have only one sample of 50 students? We can do this, because it is known that this standard deviation of the distribution of averages (usually called the *standard error of the average*) will be equal to the standard deviation of the population divided by the square root of the number of cases in the sample, or:

$$\frac{\text{standard deviation of the population}}{\sqrt{\text{number of cases in the sample}}}$$

We do not know the standard deviation of the population, but we can use the standard deviation of our sample as the best available estimate. The final formula for the standard deviation or standard error of the average, in terms of the standard deviation of the sample, is then:

$$\text{standard error of the average} = \frac{\text{standard deviation of the sample}}{\sqrt{\text{number of cases in the sample}}}$$

In our particular problem, the real score standard deviation of the sample of 50 students was calculated to be 22.54 (see page 55). Therefore, the

standard error of the average of all high-school seniors, from which our sample was drawn, is:

$$\frac{22.54}{\sqrt{50}} = \frac{22.54}{7.071} = 3.19$$

Since we know that 99.7 per cent of all sample averages will lie within 3 standard errors of the true average of the population, we might now make such a statement as this:

"It is very unlikely that our sample was drawn from a population with an average on this test of less than 64.03 or greater than 83.17. In fact the chances are only about 3 in 1,000 that our sample was drawn from a population whose average lies beyond these limits."

The limits, 64.03 and 83.17, were calculated as follows:

(sample average -3 (standard error of the average) $= 73.6 - 9.57 = 64.0$

(sample average -3 (standard error of the average) $= 73.6 - 9.57 = 64.03$

We might also say:

"The chances are only about 5 in 100 that our sample was drawn from a population with an average score less than 67.16 or greater than 80.04."

Do you see how these limits were calculated? Perhaps you will want to go over them several times before you finally put them into practice in order that they will cause you no puzzlement.

The Significance of a Difference between Averages. Now consider these problems. Our seniors in High School A make an average score of 73.6; seniors in High School B make an average score of 64.0 on the same test. Does this difference in averages mean that School A always draws its students from a "brighter" level of the total population?

Girls make a higher average score on test X than boys. Does this mean that girls are always better in the tasks measured by test X?

A group of known conservatives make an average score lower than the average made by a group of known liberals on a personality test. Does this mean that the test will always separate the conservatives from the liberals?

To answer these questions we must regard our groups as samples of larger population groups. Let us state the situation in this way, using the ability averages of High School A and High School B.

Sample A = a sample of 50 students from High School A

Sample B = a sample of 40 students from High School B

Population A = population from which High School A draws its students

Population B = population from which High School B draws its students

We saw in the previous section that the average of Sample A might vary somewhat from the average of Population A. The same thing would, of course, be true of Sample B and Population B. But it is also possible that there might be a difference between the averages of Sample A and Sample B, due to chance factors alone, *even though* the averages of Population A and and Population B were exactly the same. Our problem, then, is to find out if the difference we found between the average of Sample A and the average of Sample B might be due to chance factors. We proceed as follows:

First, set up a hypothesis—to be supported or rejected by the evidence of our data—as in the following statement:

"The difference between the average of Population A and the average of Population B is zero. In other words, Population A and Population B have the same average."

If this statement were true, and we drew a large number of successive pairs of scores from these two populations, i. e.:

$$\text{Score } A_1 - \text{Score } B_1 = \text{Difference}_1 \text{ or } 60 - 58 = 2$$
$$\text{Score } A_2 - \text{Score } B_2 = \text{Difference}_2 \text{ or } 55 - 62 = -7$$
$$\text{Score } A_3 - \text{Score } B_3 = \text{Difference}_3 \text{ or } 79 - 74 = 5$$
$$\text{Score } A_4 - \text{Score } B_4 = \text{Difference}_4 \text{ or } 80 - 80 = 0$$

and so forth, these differences would be distributed in a regular way around an *average difference* of zero. Some differences would be positive values, some would be negative values, and the greatest number of differences would be zero. Not only would the distribution of differences center around an average difference of zero, but the distribution of differences would tend toward the type which we call a "normal curve."

Therefore, if we calculate the standard deviation of these differences—commonly known as the *standard error of the difference*—we will know that:

(1) About 68 per cent of the differences would fall in the range: (average difference minus 1 standard error of the difference) to (average difference plus 1 standard error of the difference);

(2) About 95 per cent of the differences would fall in the range of: (average difference minus 2 standard errors of the difference) to (average difference plus 2 standard errors of the difference);

(3) About 99 per cent of the differences would fall in the range of: (average difference minus 2.6 standard errors of the difference) to (average difference plus 2.6 standard errors of the difference):

(4) About 99.7 per cent of the differences would fall in the range of: (average difference minus 3 standard errors of the difference) to (average difference plus 3 standard errors of the difference).

Our second step is to calculate the standard error of the difference. Statisticians have developed the following formula:

$$\text{standard error of the difference} = \sqrt{(\text{standard error of the average, Population A})^2 + (\text{standard error of the average, Population B})^2}$$

or, substituting the formula for standard error of the average:

$$\text{standard error of the difference} = \sqrt{\frac{(\text{standard deviation, Sample A})^2}{(\text{number in Sample A})} + \frac{(\text{standard deviation, Sample B})^2}{(\text{number in Sample B})}}$$

Notice that the formula for the standard error of the difference uses the *square* of the standard error of the average. When we square this formula it becomes:

$$\frac{(\text{standard deviation, Sample A})^2}{\text{number in the sample}}$$ (see p. 79)

Substituting the numerical values for our example, we find:

$$\text{standard error of the difference} = \sqrt{\frac{(22.54)^2}{50} + \frac{(26.53)^2}{40}}$$

$$= \sqrt{\frac{508.05}{50} + \frac{703.84}{40}}$$

$$= \sqrt{10.161 + 17.596}$$

$$= \sqrt{27.757}$$

$$= 5.27$$

Third, we can now ask the question: Assuming the true difference between (average of Population A) and (Average of Population B) to be

zero, what are the chances of getting a difference as large as (average of Sample A) minus (average of Sample B)? Or, in our example: What are the chances of getting a difference as large as (73.6 — 64.0), or 9.6?

We find that 9.6 is 1.82 standard deviations away from the assumed average difference of zero; that it:

$$\frac{9.6 - 0}{5.27} = 1.82$$

or:

$$\frac{\text{obtained difference in samples} - \text{true difference in population}}{\text{standard error of the difference}} = 1.82$$

The reasoning here is somewhat similar to our discussion of a standard score on page 60. There we discussed how far John's score deviated from his group's average, expressed as a ratio with the group's standard deviation. Here we are discussing an obtained average difference as it deviates from an assumed average difference of zero in the populations, expressed as a ratio with the standard deviation of differences in the populations.

Thus, even though there were no difference between Population A and Population B in average scholastic aptitude, we would get a difference in averages between any 2 samples as great as 9.6 more than 5 times in 100 (to be exact, about 7 times in 100), due to chance factors alone. Measures falling within plus or minus 1.8 standard deviations (or standard errors) on either side of the average include about 93 per cent of the cases, leaving about 7 per cent of the cases to fall outside these limits of plus or minus 1.8 standard deviations (or standard errors).

The simplest way to state this ratio, omitting the zero value, is:

$$\frac{\text{difference}}{\text{standard error of difference}}$$

This is commonly known as the *critical ratio.* Opinions vary somewhat as to the size of the critical ratio which can be accepted as indicating that a difference actually exists between the averages of the two populations sampled. A critical ratio of 2.6, for example, would mean that only 1 time in 100 would we get a difference as large as our sample difference, due to chance alone, if there was no actual difference between the averages of the populations sampled. In the present example, the critical ratio of 1.8 means that

in 7 cases out of 100 the difference between the averages of 2 groups of high-school seniors will be as great or greater than 9.6, if there was no *true* difference between the averages of the two populations from which the seniors in High School A and High School B were drawn.

There is no absolute method of deciding how big the critical ratio must be before we can conclude that High School A actually does draw its seniors from a "brighter" population, or in other words before we can conclude that our hypothesis was wrong in stating that Populations A and B were really similar in average ability.

However, the great majority of statisticians and test makers tend to be conservative. They are too well aware of the errors they can make in sampling human behavior among samples of people. Consequently, it is customary to find that nearly all critical ratios must be between 2 and 3 before significance is attached to them, or before one says that a difference in averages between two sample groups represents a real psychological difference in the behavior of the two populations from which the samples were drawn. If the critical ratio is below 2 the obtained difference is probably caused by random factors or chance factors.

A critical ratio of 2 means about 5 chances in 100 of chance factors producing such a difference between sample averages in the absence of a real difference between the population averages. A critical ratio of 3 means about 3 chances in 1,000 of such an occurrence.

In the foregoing example, we have assumed that the test already had validity, it was a good test for use, and we were trying to prove something about the students who had been tested.

But when this logic is reversed in studying group difference, as in tests of personality, attitudes, or interests, we have to assume that the groups of people we are studying are truly different, and if the average test scores made by the groups are *not* truly different, we then assume that the test is not measuring the behavior on which we selected our two extreme groups. Otherwise we must assume that we were wrong in our basis of selecting our two extreme groups.

Guideposts in Buying Tests

Fortunately one usually does not have to go through statistical operations in buying tests, since they have already been standardized according to the procedures outlined above. But to buy wisely one must understand the prob-

lems involved in test construction and how the test maker and statistician use their tools in working out the most adequate solutions.

We have tried to give a fundamental discussion of statistics in the preceding pages for two reasons. First, to make the reader feel the urge to use these devices sometime in individual research, since they are indispensable research methods; and second, to enable the reader to understand the complicated and frequently puzzling language of the test maker when selecting tests for educational and guidance purposes. All these ideas and methods are written up briefly in the test manuals, and an understanding of a few basic statistical procedures greatly clarifies the value and purposes of the test. In buying tests there are four things to look for in the test manual. Here they are in summary form:

Reliability or Accuracy. Are the test-retest or odd-even or split-half reliability coefficients of correlation calculated from this test at least .85? Furthermore, have they been calculated on a group of people similar in age, sex, and background to the people on whom you want to use the test? This last question is important.

Validity or Meaning. Does this test measure something important for you to know about the present or future success of your students? Are the validity coefficients of correlation at least in the range of .35 to .60, and if possible are they toward the upper end of this range? If such coefficients are not available, is there adequate evidence, in critical ratios of 2.6 or larger, that the test will distinguish groups of people at the opposite extremes of a unit of behavior satisfactorily? Can the student whom you plan to test be considered, now or later, as belonging either to the extreme groups or to the competitive groups on which the validity coefficients were calculated?

Norms. Has the test been given to a large enough sample of people similar in age, sex, and background to the people whom you want to test? Has it also been given to a large enough sample of people with whom you want to compare your students with an eye to their future competitive life situations? Are the norms from these samples of people in percentile form, age form, grade form, standard score form, or some other form? A frequent and often unnecessary confusion in testing programs comes from buying several kinds of tests, *each one of which uses a different method of stating its norms.* The person who then has to interpret several such tests when talking to the student can easily become confused by these various methods of indicating the student's relative performance. If adequate norms don't exist,

and if the test is good in other respects, can you give it to enough people to establish your own norms? This possibility is often overlooked by test purchasers.

As a matter of fact, and this is particularly important, the *best* procedure is always to plan to set up your own norms, using the published norms for checking and comparative purposes, side by side with your own norms, whenever possible.

Practicality. If the test has a time limit, is the time limit short enough so that the test can be completed within your usual classroom period? If not, can it be stopped and started again without affecting the results? Does it have answer sheets already prepared? Can mimeographed answer sheets be set up? Or will the test only be used on one student? Recently test makers have been using machine-scorable answer sheets, which are also hand scorable with proper stencils.

These represent real savings in money. If a test costs 6 cents and you plan to test 100 students, you spend 6 dollars if the test can be used only once. But if you can buy or make mimeographed answer sheets for 2 cents or less, and if you can spread your testing out for groups of no more than 20 students, you will pay for 20 tests and 100 answer sheets, making a total bill of only 3 dollars and 20 cents—2 dollars for answer sheets at the most and 1 dollar and 20 cents for 20 tests. The savings is 2 dollars and 80 cents.

Are scoring costs high or low? Most tests can be scored in 2 to 5 minutes by competent clerks and therefore your scoring charges will depend on volume of testing in terms of prevailing wage schedules for clerical help. But some tests can be completely scored only by a machine at around a dollar per test plus postage to the nearest machine-scoring center. A few tests take so long to score by hand that they become of doubtful value. What are the net costs for tests, and what discounts are given for quantity lots?

The answers to these and similar questions can be obtained from any test publisher or marketing agency merely by writing a letter. But they are sometimes neglected, and the school starting a testing program finds itself in the midst of confusion in records and unnecessary expense that could have been prevented by shopping around.

Now in Chapter 4 we can turn to specific tests and methods for studying students as a means of diagnosing their difficulties and helping them solve their problems.

Selected Bibliography

1. Garrett, H. E. *Statistics in Psychology and Education.* Longmans, Green and Company, New York, 1937 (Revised Edition). 493 pp. Price: $3.50. (t) (*)

   A standard statistical reference and required reading if statistics are to be important in the program.

2. Lindquist, E. F. *A First Course in Statistics.* Houghton Mifflin Company, New York, 1938. 226 pp. Price: $2.25. (t) (*)

   Another standard statistical reference, for inescapable work in statistics.

3. Smith, G. M. *A Simplified Guide to Statistics.* Farrar and Rinehart Company, New York, 1938. 70 pp. Price: 50 cents. (t) (*)

   An inexpensive and straightforward discussion of the basic statistical procedures needed in understanding tests and working out educational experiments. Contains exercises for practice purposes as an aid to learning.

CHAPTER 4. *Selecting Tests*

Teachers must make judgments about the individual student's strong and weak points if clinical work is to be done. Since we cannot escape this part of counseling the problem then is to make as sound a judgment as possible.

Judging Students

These judgments are usually made while we watch the *student* "in action," or performing in some way. The student's performance in a classroom examination leads to a teacher's judgment about his mastery of the subject, stated as a grade. The student's behavior on an eye examination leads to the doctor's judgment about his visual powers. The student's speed in the 100-yard dash, timed in seconds, leads to a judgment of his competitive standing in a track meet. In each case, the student *does something,* and one or more observers derive information from this sample of behavior. These samples are actually informal tests.

It follows, therefore, that we are not in a position to say "I don't believe in tests" or "I can't see any value in all these tests," since carefully constructed tests simply provide a standardized observational situation for a given sample of behavior. We are going to observe students in one way or another; where possible the method of observation should be as standardized and as precise as possible.

Observations based on tests are usually expressed numerically, according to the statistical practices described in Chapter 3. Observations not based on tests are usually expressed by descriptive adjectives, such as a *lazy* student or a *disciplinary* problem or a *bright* child or a *daydreaming* type of student.

When we deal with one individual student in an interview we are doing *clinical* work. In that interview, we must be able to combine wisely both the numerical and adjectival information we have collected. Certain aspects of behavior cannot yet be measured by tests and can only be *described* by an observer. For example, "stick-to-it-iveness," "will power," "motivation," "honesty," or "dependability" are important characteristics which must be *described* rather than numbered.

Other traits can be more economically and more quickly measured by tests, although the degree of possession of the trait could also be estimated by observers without tests. For example, "social surefootedness," "economic conservatism" or "proficiency in arithmetic" could all be observed over a long period of time, with an ultimate statement of the student's possession of the trait that would be acceptably accurate. But in each case, a standardized test would give probably a more accurate observation in the space of five to forty-five minutes. Some traits can most accurately be measured by standard tests, such as "scholastic aptitude," "finger dexterity," or "typing speed"; these traits would be too crudely estimated by non-test methods.

The problem then is to decide which aspects of behavior can best be measured by tests, and which by other observational methods. The problem is never one of a choice between a lot of tests or no tests at all.

It should not be overlooked that the person who does not or cannot use a standardized test is *still* being forced into the position of making a judgment that will have some degree of accuracy or reliability, meaning or validity, and *relative* meaning for the competitive demands the student will face, even though these factors are not clearly known.

For example, the teacher says that John is a *dull* child. How *reliable* is that judgment? Would other observers classify John at the same place? Would the same teacher classify him as dull if she could see a larger sample of his intellectual behavior in her own field of knowledge? How valid is the judgment? Does it mean that she predicts John will never be able to graduate from high school? Does it mean he will not learn her subject or any other subject? May she not be truly observing his failure to respond to her, without realizing she has not brought out his possibilities? What is her

norm group, with which she is unconsciously comparing John? Does she mean he is poorer than 5 or 45 out of every 100 students of that age in that school? Or does it mean that John is above average for his group, but below the average of students in the last school in which she taught?

Another example. One teacher finds Mary to be her *best* student in English. Best among a poor class? Best because she writes "interesting" themes, even though her written English is mechanically only average? Best because she has such a delightful personality and is "no trouble in class"? Good enough to get better than average grades at the near-by state university?

Still another example. Robert is a *radical;* he's always "stirring up trouble." What are the teacher's own leanings? If she is extremely conservative, Robert's alert questions in social science classes and his participation in student government may seem the essence of radicalism, when they perhaps might be more accurately described as coming from a well-informed and intelligently critical child. Furthermore, his liberalism, or "radicalism" so-called, may be limited to only one topic and he may be genuinely conservative in other situations or on other topics, such as religion.

These questions touch upon the *accuracy,* the *validity,* and the *norms* that lie behind these nontest or descriptive judgments. We cannot emphasize too strongly that a judgment, derived from a test or a non-test observation of the student, can be no better than the accuracy, validity, and frame of reference or norms that characterize the test or non-test situation in which the student is observed. A test is no more nor less than one kind of situation in which to observe the student's performance. It happens to be a situation whose accuracy and meaning can be directly studied by statistical methods. As a matter of fact this is more than can be said for the non-test observation of those who feel that standardized tests are useless, impractical, or somehow unfair to the student.

Tests do not classify students as "passing" or "failing." As a matter of fact, certain kinds of tests, such as interest, attitude, or personality measures, have no "right" or "wrong" answers from which to calculate that a score is "good" or "bad." Even in an ability, aptitude, or achievement test, where a student can make a high or low score, he does not "pass" or "fail." He simply performs at a level that is *related* to the level of performance of other people similar to him. He may be better than a large proportion or a small proportion of such people, but the idea of passing or failing need not enter

into the picture. In this sense, *norms* are different from *standards* (remember the discussion on page 60).

Throughout this discussion it has been emphasized that tests are to be considered simply as one type of observational situation. Their use requires some background of statistics. They are not perfect, but their limitations are set forth by the statistics that accompany them. And they are the basis of judgments more accurate than many of the biased generalizations resulting from other observational situations.

Kinds of Tests

Tests can be classified in three ways: type of equipment needed; time-limit or work-limit conditions of administration, and type of behavior being measured.

In terms of equipment needed, there are two broad kinds of tests: pencil-and-paper tests; and performance tests requiring expensive equipment and individual administration. Either kind may be given as a time-limit test, where the working time is set, or as a power or work-limit test, where the student works until he completes the task at hand, or can go no farther with the task. Types of behavior being measured include: general scholastic ability; special aptitude or disabilities; subject matter or trade achievement; vocational interests, and personality and attitudes. With minor modifications these are the basic types of tests to be taken by an individual.

Rating scales, observation schedules, or check lists are standardized measuring instruments on which an outside observer can record facts or impressions about an individual.

As publishing companies and marketing agencies have gradually taken over the sale and distribution of many tests, certain features, good and bad, which characterize competitive economic ventures, have become a part of the testing field. Authors often receive royalties from the sale of their tests; marketing companies push the sale of certain tests and try to get a "line of goods" that will compete satisfactorily with that of their competitors. Some tests are so expensive to buy and use because of manufacturing costs and upkeep costs that they are out of the price range of many test users. Some tests are manufactured in such small quantities and controlled in such a monopolistic fashion that they are truly overpriced.

The fact that users of tests may be untrained in test theory and practice is too frequently overlooked. In the test field there are no uniform standards

of excellence or quality as in the field of, say, drug manufacture and sale. The test author's conscience, his skill in statistical techniques, and his fear of criticism by his colleagues are perhaps the main factors controlling the quality of the test offered for sale. Nevertheless, competition has produced a satisfactory number of adequate or excellent tests, inexpensive enough to be used widely.

Among test users, buying habits grow up, much as they do among other types of consumers. There may be about as little difference in quality among three good achievement test batteries as there is among the three lowest-priced cars. Under such circumstances personal preference, familiarity with the test, or the amount of high-pressure salesmanship brought to bear will be the determining factors in the selection, rather than basic differences in value.

Just as there is no standard guidance program, so there is likewise no standard testing program adapted to all schools. You may start by inserting only one kind of test, such as a good achievement test or a good general ability test, in a going guidance program. As you become familiar with this, you will want to add other types of tests and move in the direction of earlier testing of all new students. In general, you will be on safer ground, not only in terms of your own understanding, but also in terms of relationships with your students and co-workers, if you introduce testing procedures gradually, and if you steer clear of the more difficult types of testing, such as personality measurement, in the early stages of your work.

General Scholastic Ability

This type of behavior, commonly called "intelligence," has been subject to the greatest amount of investigation and discussion by psychologists concerned with test making. It would be difficult to buy a thoroughly bad scholastic ability test today. Yet the grandfather of all mental tests—the original Binet-Simon scale standardized on school children in Paris—is not yet 50 years old. A usable translation into English was made by Terman and his associates at Stanford University around 1910, and the last and most adequate revision of this Stanford-Binet appeared in 1937. The I. Q., or Intelligence Quotient, derived from tests of this kind, needs a brief word of explanation, since it is probably one of the most misunderstood concepts in psychology. It is arithmetically quite simple: 100 times (mental age divided by chronological age) or $100 \times \frac{\text{M. A.}}{\text{C. A.}} = \text{I. Q.}$

The chronological age is merely the child's actual age at the time of testting, in years and months. The mental age is determined by the test situation. For each year of age there are carefully *selected* test items which are representative of the performance of children of that age. Thus a child who passes as many items as the average child of age 7 has a *mental age* of 7. Now if his own chronological age is only 5, his I. Q. is $100 \times \frac{7}{5}$ or 140. The mental age, or M. A., is an absolute measure of the child's ability level; the I. Q. indicates relative degree of ability, permitting comparison of children of different chronological ages. The I. Q. thus can be said to be an index of brightness.

Two general cautions are necessary. In the first place, these tests can be given accurately only by a trained examiner who has given scores of tests under supervision before he is competent to examine alone. It is an oral interview type of situation that can easily be mishandled by an unskilled examiner. In the second place, many of the I. Q.'s that appear on school system records *have not been calculated from this test.* During the first World War, when large-scale and rapid testing of draftees was imperative, psychologists set up short-answer pencil and paper tests which could be given to large groups of men easily and in a short time period. Where it was later possible to have the same group of people, either adults or students, take both the pencil-and-paper test *and* the Stanford-Binet, it was also possible to *equate* or *convert* the pencil-and-paper score to an I. Q. much as we can equate Centigrade and Fahrenheit temperature readings. Furthermore, other test makers could set up a different group of test items for the average child of any given age, and could use the I. Q. idea of dividing the resultant mental age by the chronological age to derive an I. Q. based on this different group of test situations.

Therefore when you hear people talking about "I. Q. scores," you have a few questions to ask to aid you in judging the significance of such "scores."

1. Is the I. Q. derived from the original or revised Stanford-Binet, administered by a thoroughly competent examiner? If so, it's probably a stable index of scholastic aptitude. In the original Stanford-Binet, abilities below the four-year mental level and at the above-average adult mental level were inadequately sampled. In the mental age range 5 through 10, the standardization was good, but above age 10, scores were progressively too low because

of the nature of the abilities sampled and because the top chronological age was arbitrarily set too high. These weaknesses have largely been corrected in the 1937 revision.

2. Is it an *equated* I. Q., derived by giving a pencil-and-paper test of scholastic aptitude and *converting* the resultant score to the $\frac{\text{M. A.}}{\text{C. A.}}$ ratio? If so, was it a time-limit test where a reading disability would cause this student to get a low score; or was it a work-limit test where the student had all the time he needed to reach his top performance?

3. Is it an I. Q. based on performance test situations, such as the Merrill-Palmer test or Pintner-Paterson Performance Scale, or some other set of test items different from the Stanford-Binet items? If so, are the standard deviations of these tests the same as the standard deviations for the Stanford-Binet test?

4. Finally and always this question: What is the average I. Q. of the children with whom this student is now competing or may have to compete in the future?

Because the I. Q. is so frequently used and so often misunderstood we have devoted these comments to it. It is not a test that you will be likely to buy or use. The equipment is expensive; the necessary training in administration is extensive; and the same practical values, in the majority of cases in the normal ranges of scholastic aptitude, can be obtained from group pencil-and-paper tests. There are, however, three other points regarding I. Q.'s that should be kept in mind.

This index of intelligence is used in the legal-sociological problems of feeble-mindedness as it relates to the individual's ability to maintain himself in society. The broad bands of I. Q.'s, with their verbal interpretations, which will be found in Table 12 on the opposite page, will give you some idea of the significance of the measures as they are found in the population at large. There are many classifications of this type, and they do not all agree in assigning the same descriptive titles to the ranges of I. Q. scores. The classification given in Table 12 has been adapted for use in this book from an article by Bernreuter and Carr [1] on the revised Stanford-Binet.

In the second place, a rather clear-cut relation exists between level of I. Q. and adult occupational adjustment. Two studies illustrate this. The

[1] Bernreuter, R. B. and Carr, E. J., "The Interpretation of I.Q.'s on the L-M Stanford-Binet." *Journal of Educational Psychology*, Vol. 29, 1938, pp. 312-314.

TABLE 12

Range of I.Q.	Descriptive Term	Approximate Per Cent of Total Population in Ranges	Additional Descriptions
above 150	near genius	0.1	.....
130–149	very superior	3.0	.....
115–129	superior	14.0	college entrants
85–114	normal	66.0	high-school graduates
70– 84	dull	14.0	unskilled; transient
60– 69	borderline	2.0	workers
40– 59	moron	1.0	institutional cases, dependent on society
20– 39	imbecile	....	
0– 19	idiot	....	

first, carried out by Proctor [2] involved the testing of 1,514 school children of high-school age. Thirteen years later, 945 of these were followed up to see what occupational adjustment they had made. Their specific job pay roll titles were grouped into broad categories from high- to low-level jobs. For all people in a category the average I. Q. was calculated. The results were as follows:

TABLE 13

Average I.Q.	Occupational Group	Typical Jobs in Group
115	I	Business executives, college professors, dentists, engineers, lawyers, physicians, and surgeons
108	II	Business managers, real estate and insurance brokers, farm managers, housewives, nurses, private secretaries, salesmen, and teachers
104	III	Bookkeepers, clerical workers, electricians, mechanics, stenographers, salespersons
99	IV	Foundrymen, janitors, letter carriers, mill hands
97	V	Unskilled laborers

[2] Proctor, W. M. "Intelligence and Length of Schooling in Relation to Occupational Levels," *School and Society*, XLII, No. 1093, pp. 783-86.

The evidence is clear: On the average, the more ability the child has, the better job he will have as a young adult.

Fryer,[3] among others, has worked out similar figures based on Army Alpha Test scores from recruits in the first World War. Army Alpha was the name given to the pencil-and-paper test developed about 1917–1918 to test the draftees at that time. Parts of his data are shown below and again the evidence is clear. Those in higher-level jobs have more of this scholastic ability.

TABLE 14

Occupation	Average Alpha Score	Equivalent Mental Age
Engineer	161	19.0
Clergyman	152	18.6
Accountant	137	18.0
Teacher	122	17.4
Dentist	110	16.8
Stenographer and typist	103	16.6
Nurse	99	16.4
Clerk (office)	96	16.2
Druggist	78	15.0
Telephone operator	70	14.5
Policeman and detective	69	14.4
Toolmaker	67	14.3
Plumber	66	14.3
Auto mechanic	65	14.2
Carpenter	60	13.8
Painter	59	13.7
Farmer	58	13.6
Salesclerk	52	13.4
Cook	27	11.5
Laborer	21	11.0

The third point is of immediate concern in classroom situations. Class sectioning on the basis of I. Q. or the wisdom of splitting up classes into "slow" and "fast" learners, is a highly controversial point in teaching. About all that can be said *usually* is that the disadvantages and advantages about cancel each other out. However, when sectioning is followed by a change

[3] Fryer, D. "Occupational Intelligence Standards," *School and Society*, Vol. 16, Sept. 2, 1922, pp. 273-77.

in *content* taught, as well as in speed of teaching, students may profitably be sectioned for some of their work. Furthermore, without resorting to formal sectioning, the teacher who knows the range of ability in his or her class can adapt procedures, choose examples, and change the quantity of work expected from students at various levels of ability.

In judging the amount of intelligence that the student has, we have most often based our judgment upon the school grades earned. This tends to confuse potential ability with the use made of ability in achieving. In other cases the judgment may rest directly on teachers' ratings. But behind these ratings we can usually find the effect of the teachers' grades, since the grade is partial evidence of intelligence "in action" in the learning situation. Generally speaking, these two judgment-making devices—grades and teachers' ratings—are less direct and accurate measures than a good test of general scholastic ability. Ability test scores and grades in high school typically correlate about .50. By referring to the table in Chapter 3, page 71, it appears that even though this is a fair correlation, one would still make many mistakes in predicting above- or below-average ability on the basis of grades alone.

It is unlikely that we can do without one or two good tests of general academic ability in our testing program. We have stressed the primary educational problem of work up to capacity in the earlier discussion; tests of scholastic ability are as direct a measure of *capacity* as the test maker can provide.

Hints for Testing Academic Ability

Here are some general suggestions for testing scholastic or academic ability:

1. For your general testing program pick one test whose time limit permits it to be given within a classroom period. If possible this test should have at least two alternate forms.

2. If possible, to provide as stable an index as possible, use more than one test of general scholastic ability as the basis for individual counseling.

3. Where you have any reason to suspect a reading problem, then retest with a non-time-limit test in order to get an estimate of ceiling of ability unaffected by the pressure of time. This means buying at least two scholastic ability tests. If the non-time-limit test is markedly higher, then use a test of reading ability to track down one possible reason for poor results.

4. Since a substantial group of states have state-wide testing programs for college entrants, and since many colleges or universities test entrants for purposes of selection or classification, write to the institutions where your graduates may matriculate to find out what tests are used there, what levels of ability they insist on, and what information will be wanted from you regarding the student.

5. If possible, pick a test which is broad enough to cover the usual range of ability found in grades 9 through 12, and be sure you first use the norms appropriate to the student's age or grade placement.

6. If you plan to test any large group of students (as you should do in order to check your local group against the published norms) it is sometimes wise to test the entering class and the senior class, to "bracket" your ability range. This can be done in homerooms, special assemblies, or occupations and group guidance classes.

We may seem to be spending a lot of time on the topic of general scholastic ability. However, this ability, as measured by available tests and as judged in our casual daily vocabulary, pervades many life situations as a determining factor in adult adjustment. An informed citizenry is a prerequisite for a working democracy. Individual differences in intelligence partially set the boundaries for the state of being "informed." It is the task of education to determine the level of intelligence of each child and develop that level to the utmost by teaching methods, by selection of things to be taught, and by adequate reward for accomplishment up to capacity. In no sense should the determination of level of intelligence be the means of cutting the child off from the opportunity to learn. Conversely we gain nothing by ignoring level of intelligence and assuming that students do not learn what we teach only because they will not listen to us.

The four tests of general academic ability listed here all have reliability coefficients of .90 or better. In other words, students will rank in about the same relative place in their group on two or more testings with tests of this kind. In the elementary school years, tests of ability correlate about .60 with grades; in the high-school years, ability tests and grades correlate to the extent of about .50; and in the college years, ability tests and grades correlate to the extent of about .40–.45. Since much of our counseling is concerned with discrepancies between ability and achievement, it is essential that ability and achievement be independently measured if we are to see the discrepancies as they occur.

Selected Ability Tests

Any one of the four tests listed below will be adequate for a guidance program. It would be wise to send for sample copies of all four so that you can compare them and discuss them with other members of your staff.

American Council on Education Psychological Examination for High School Students

This is a time-limit test which gives total score and two sub-scores: one on linguistic ability (L-score) and another on quantitative thinking (Q-score). As the authors state, these two sub-scores "represent two groups of abilities significant for curriculums that are dominantly linguistic or technical."

Time: 54 minutes.

Reliability: For the 1940 edition of the test, hand-scoring edition, Q-score reliability = .94, L-score reliability = .95, Gross-score reliability = .96; for machine-scoring edition, Q-score reliability = .96, L-score reliability = .95, Gross-score reliability = .97. The measures of reliability for the hand-scoring edition were based on scores of 410 freshmen at the Illinois Institute of Technology; reliability for the machine-score edition was computed from the scores of 548 freshmen at the University of Chicago. Computed by corrected odd-even correlation.

Validity: To be locally determined.

Norms: Comprehensive norms for each annual edition are published in Series V of the *American Council on Education Studies* for April of the school year in which the test is current. Means, standard deviations, frequency distributions, and percentile ranks for each of the grades 9–12, are furnished for the hand-scoring and machine-scoring editions separately up to 1941. The 1941 editions are constructed so that the machine-scoring and hand-scoring forms are directly comparable.

Authors: Louis L. Thurstone and Thelma Gwinn Thurstone, University of Chicago.

Publisher: The American Council on Education, 744 Jackson Place, Washington, D. C.; distributed by Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois.

Cost: $0.07 per test, including test booklet and answer sheet. Additional answer sheets, $0.02 each. Manual, scoring keys, and norms, $0.25.

The Ohio State University Psychological Test: Form 21

This is a work-limit test which yields a total score for measuring scholastic aptitude, and a sub-score for measuring reading ability.

Reliability: .93, based on 300 cases. Computed by correlating two forms of the test.

Validity: .68, based on 1,030 cases. Criterion used for validating was the point-hour ratio of college freshmen, covering a period of three full quarters (i.e., a college year of 36 weeks).

Norms: Norms for reading score and for total score in percentile form are furnished for each of grades 9–12 and for college freshmen.

Author: Herbert A. Toops, Ohio State University.

Publisher: Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois.

Cost: $0.25 per test, including test booklet and answer sheet. Additional answer sheets, $0.05 each. Both hand-scoring and machine-scoring answer sheets are available. Specimen set, including manual and norms, $0.25.

The Otis Self-Administering Tests of Mental Ability

These are time-limit tests, consisting of a Higher Examination designed for grades 9–12 and for college students; and an Intermediate Examination designed for grades 4–9.

Time: 30 minutes, or 20 minutes.

Reliability: For Higher Examination, .92; for Intermediate Examination, .95. Computed by correlating alternate forms of the test.

Validity: Coefficients of validity, as reported from two studies: Grade 11, coefficient of validity, .55, based on 240 cases; Grade 12, coefficient of validity, .57, based on 204 cases. Test scores were correlated with scholarship.

Norms: Age and grade norms furnished in the manual, as well as charts for translating raw score to percentile rank, or to Binet Mental Age and I. Q.

Author: A. S. Otis.

Publisher: World Book Company, Yonkers-on-Hudson, New York.

Cost: $0.90 per package of 25 tests, including manual, scoring key, and norms; specimen set, $0.25. Four alternate forms of each test are available.

Pressey Senior Classification Test

This is a time-limit test, designed to measure general ability or to be used in first investigation of the accuracy of grade or section placement of the student.

Time: 16 minutes.

Reliability: Correlation of .91 between scores on Senior Classification Test and the alternate form, Senior Verifying Test, based on scores of 334 gainfully occupied men; .90, based on scores of 131 women.

Validity: The scores of 57 University of Minnesota High-School freshmen had a .92 correlation with the mean of 9 other standard intelligence tests. For these same students, the Classification Test correlated more highly with academic grades than did most of the other 9 tests.

Norms: Median scores for grades 7B–12A, and for ages 11½–17½. Norms for gainfully occupied adults and for various occupational groups have been published by the Employment Stabilization Research Institute, University of Minnesota.

Authors: S. O. and L. C. Pressey, Ohio State University.

Publisher: Public School Publishing Company, Bloomington, Illinois.

Cost: $1.25 per 100 copies, including direction sheets; or $0.01½ per copy for smaller quantities. Sample set, $0.10. Alternate form, Pressey Senior Verifying Test, available at same prices.

General Achievement Tests

This type of testing is probably the most straightforward and easily understandable type. Classroom examinations come immediately to mind, as achievement tests in a given subject. The range of achievement measures is and should be much greater than this. We are all familiar with the average grade and the specific pattern of an individual's grades, from which we can judge him to be best in one subject and poorest in another, or better in one type of subject than he is in another. These are important measures for intra-individual and inter-individual analysis, so long as we have all our individuals within one school and one group of teachers. But when students move outside the walls of this closed system, our grades are not always such good measures and not always the only measures predictive of the later adjustment of the individual. For example, high-school grades correlate with later college grades only to the extent of about .50 to .60, which still leaves considerable error in prediction.

The standard achievement tests are designed to have several advantages which should be clearly understood.

1. A group of subject matter specialists combed textbooks, syllabuses, and other teaching materials to select questions for the examinations that are representative of practices in teaching over a wide area. The specialists whose names appear on the test have, therefore, analyzed out possible test items upon which there could be considerable agreement throughout the teaching field.

2. The test technicians then take the possible items for the test and phrase them into the most useful and most sensitive type of objective test item, such as the multiple-choice response, the matching question, the completion question, or special types of true-false questions. In this regard you will hear many arguments for local teacher-constructed objective tests. However, there are many tricks of the trade in constructing and standardizing objective test items and it is unlikely that many teachers can learn these tricks in the ordinary course of their work. Therefore, the locally-made objective examination for achievement testing does not usually turn out to be any better than the traditional type of essay questions.

3. Another important advantage of standard achievement tests is that the tests themselves have been pretested for the user. In other words, the reliability of the test has been determined according to the correlation methods described in the preceding chapter; percentile or age or grade norms have been established on representative samples of high-school or college students; and poor items in the test have been eliminated when they failed to show a high critical ratio between good and poor students.

4. Comparison values also are an advantage of standard achievement tests. Such tests, therefore, which have been widely used in the process of standardization and which have been given to many students in other testing programs permit you to study the achievement of your students in relation to other students in other schools, in other areas, and in other types of competition.

5. The ease of administering and the simplicity and objectivity of scoring a prepared achievement test also are valuable. The very process of standardizing a test has ironed out bias and differences of opinion regarding right or wrong answers. Furthermore, the use of a scoring key eliminates the possibility of "shading" the scores for a particular student because the teacher may believe that student to be otherwise a good or bad worker.

Uses of Achievement Tests

Now what uses can be made of an achievement test? Obviously, they should not supplant the local teacher's examination. In fact, they are most useful when the results can be compared with the grades assigned in the same subject by the local teacher.

Their first use can be to survey the achievement background of the students coming from the elementary school or from the junior high school. For example, an achievement test covering the elementary school subjects could be given early in the 9th grade to all new 9th graders to find out their level of competence in basic skills and basic subject matter.

If possible, selected subject matter tests in English, natural science, social science and mathematics could be given to all students at the end of grade 12. You should also have separate achievement tests on hand to be given individually to the students whom you counsel in addition to the batteries suggested for grades 9, 10, 11, and 12. You should make every effort to confine your achievement test buying to one source in this type of program, since it is possible, with comprehensive tests and tests rated for level of difficulty, to see growth in subject matter achievement from year to year for all students, and more importantly, to see how the individual student departs above or below the norms for the class and group at any time. These insights can come best by using the same types of tests rather than jumping from one type of test marketed by Company X to another type of test marketed by Company Y. If annual testing is too expensive, entrance achievement tests and end-of-high-school achievement tests could be used.

We said earlier that standard achievement tests should supplement the grades given on the basis of local classroom examinations. This follows the general principle of having two measures of the same aspect of behavior available wherever possible. In this case the grade given locally in history can be compared with the score made by the student on a nationally standardized history test to get two independent measures of achievement in history. Furthermore, because of justified local emphasis in the teaching of history, the standard examination based on a nationwide study of similar history courses may omit or underemphasize certain materials which the local teacher feels are important.

However, the most interesting comparisons to be made between the local grade and the standard examination score are those which correct the bias of the teacher as a grading yardstick. For example, it has been established

in study after study that girls receive higher grades from teachers than do boys even though both groups have the same basic abilities. This sex difference may be explained by the fact that girls are more conscientious or use their abilities better or cause the teacher less trouble. But it is interesting to remember that when standard achievement tests are used, the girls and boys on the average show the same level of performance if they are otherwise equal in ability. For the purposes of getting an objective picture of subject matter achievement then, the standard achievement test rules out the general sex difference in earning grades.

As another example, we have sometimes seen both girls and boys with all A grades, or with all C grades, in their high-school subjects. From such a record it is impossible to distinguish strong and weak points in subject matter. But when standard achievement tests are given to such students, they frequently do well in some areas, with average or poor performance in other areas. In such cases the standard achievement test scores are more sensitive indicators of strong and weak points and are therefore valuable checks on the local teacher's grade. Standard achievement tests are also invaluable in determining acceleration for some students in one or more subjects and may thus lead to more flexible program planning.

As we have mentioned earlier, in this general area of achievement it is not enough to locate the level and types of subject matter achievement alone. You should go to the supervisors of extra-curricular activities in which your students participate and get them to describe or evaluate the success of the student you are interested in for the specific extra-curricular activity. If the student has had summer work experience or part-time work during the school year, you should have the employer or the supervisor give you the same kind of information regarding achievement on the job. In the case of industrial arts training you should investigate the possibilities of the trade testing program carried on by state and local employment offices affiliated with the United States Division of Employment Security. You will find that these local employment offices are quite often equipped to do trade and aptitude testing for junior employment registrants as an aid in placement.

Even if the employer or the supervisor of the extra-curricular activity can do no more than give you the general rating of the student or a general ranking from high to low of all students in the activity, you will have added valuable achievement estimates to the material you are collecting on each child.

Selected Achievement Tests

We describe here the achievement tests published by four separate agencies. Again we could describe many more measures of this kind but these four are representative of the best available measures in the field.

Metropolitan Achievement Tests: Revised Edition. Advanced battery.

This battery is useful in surveying the background of high-school entrants. Its long administration time, however, may make it difficult to use in some school programs. The 9 sub-tests survey the following fields: reading, vocabulary, arithmetic fundamentals, English, literature, history and civics, geography, and spelling.

Alternate forms and grades covered: 5 forms. Grades 7–8.

Time: About four hours, including time for distributing booklets, reading directions, etc. The authors recommend that the tests be given in at least four sittings.

Reliability: Correlation between Form A and B total scores was .92 for grade 7, .95 for grade 9.

Validity: To be locally determined.

Norms: Raw scores may be translated into grade and age equivalents. The Educational Records Bureau has published percentile norms for independent schools.

Authors: R. D. Allen and others.

Publisher: World Book Co., Yonkers-on-Hudson, New York.

Cost: Complete battery (245 minutes) $2.00 per 25, $0.25 per specimen set. Partial battery (180 minutes), $1.50 per 25, $0.25 per specimen set.

Iowa Every-Pupil Tests of Basic Skills. Form L. Advanced battery.

This scale attempts to measure basic skills necessary for success in junior and senior high school rather than achievement in a given subject. There are four tests in the battery: silent reading comprehension, work-study skills, language skills, and basic arithmetic skills.

Grades covered: Grades 6–8.

Time: 325 minutes.

Reliability: Complete data will be made available later.

Validity: Complete data will be made available later.

Norms: Grade norms, age-at-grade norms, and percentile norms.

Authors: H. F. Spitzer and others.

Publisher: Bureau of Educational Research and Service, Extension Division, University of Iowa, Iowa City, Iowa.

Cost: Any one test, 25 for $1.25; complete battery, 25 for $4.00; specimen set, $0.25; Manual of Interpretation, $0.30, Manual of Norms, $0.15.

Iowa High School Content Examination

This battery provides an excellent end-of-high-school survey in basic subject matter fields: English (literature and grammar), mathematics, sciences, and history and social sciences. The same publishers have developed special aptitude or achievement tests in the fields of English, mathematics, chemistry, and physics. These should also be carefully studied for possible use.

Forms: A, B, A-1 and B-1. Alternate forms and grades covered: Forms A, B, A-1 and B-1. Entering college freshmen, and high-school seniors.

Time: Forms A and B, 80 minutes. Forms A-1 and B-1, 55 minutes

Reliability: .95.

Validity: To be locally determined.

Norms: Percentile norms for Iowa high-school seniors and for University of Iowa freshmen.

Authors: G. M. Ruch, G. U. Cleeton, and G. D. Stoddard.

Publisher: Bureau of Educational Research and Service, University of Iowa, Iowa City, Iowa.

Cost: $8.00 per 100; sample, $0.10.

Stanford Achievement Test. 1940 Edition. Advanced battery.

This battery surveys the fields of reading, language usage, arithmetic, literature, social science, elementary science, and spelling.

Alternate forms and grades covered: Forms D, E, F, G and H. Partial batteries are now in preparation. Individual subject tests are available. Grades 7–9.

Time: 170 minutes, including time for distributing booklets, reading directions, etc.

Reliability: Corrected split-half correlation was .97.

Validity: To be locally determined.

Norms: Raw scores on each of the separate tests are converted to a single scale of scores called equated scores. The latter in turn may be transferred into age and grade equivalents.

Authors: T. L. Kelley, G. M. Ruch, and L. M. Terman.

Distributed by: The Psychological Corporation, 522 Fifth Avenue, New York City.

Cost: $2.00 for 25; specimen set, $0.40.

Co-operative Achievement Tests

These tests include both selected subject matter tests (English, foreign language, mathematics, science, and social studies) and survey tests for high-school and college students.

Time: The earlier co-operative tests were mostly 90-minute examinations; the Revised Series are 40- or 45-minute examinations.

Reliability: All corrected correlations above .90.

Validity: To be locally determined.

Norms: Scaled scores, differentiated norms in the fundamental subject fields, percentile norms for 11th and 12th grade public school systems and for three college groups: preprofessional, liberal arts, and normal school or junior college.

Authors: Selected in each subject matter field.

Publisher: Cooperative Test Service, 15 Amsterdam Avenue, New York City.

Costs: See publisher's bulletin.

Tests for Special Deficiencies

It is estimated that 20 per cent of entering college students have inappropriate or inadequate reading skills for the demands of college assignments. It is well known that many students do not handle algebra and other mathematics well because of lack of necessary knowledge of arithmetic. English teachers are familiar with deficiencies in spelling or in grammar.

To identify problems of this kind, test makers have developed diagnostic tests. Such tests are exactly the same as standard achievement tests except for one thing. The standard achievement test yields a single score which is an index of the over-all amount of knowledge in the subject. The diagnostic test breaks up the achievement field into separate parts to yield scores that are indices of deficiency in the important learning aspects of the subject. For example, the diagnostic reading test may have a part score for reading rate, for comprehension, for poetry reading, for word meaning, for topic sentence reading, and so on. The diagnostic test in arithmetic will have part

scores for the four standard operations of addition, subtraction, multiplication, and division.

In the case of the achievement tests covering elementary school work, which we have already described, high-school teachers may "spot" retardations in specified fields of knowledge. A student who is retarded in a particular subject may need correction or special study in only one aspect of the subject, however.

To avoid confusing deficiencies of this kind with lack of general ability, your problem in studying deficiencies should usually be stated as follows: Does this student have adequate general ability for his age as measured by an untimed scholastic aptitude test? Does he then show specific weakness in a basic educational skill such as reading, arithmetic, or English, as seen in part scores on appropriate diagnostic tests? Most diagnostic tests provide age or grade norms which are clues to answering the above two questions. A student, for example, who is in grade 11 and is doing some satisfactory work but whose reading or arithmetic skills are equivalent to a 9th grader's or less, is probably operating under special deficiencies in these areas.

Similarly, deficiency and lack of aptitude may be confused. We might say that a student whose social science grades are quite high but whose mathematics grades are quite low has a deficiency in mathematics or has insufficient aptitude for mathematics. This illustrates the relation which might exist practically between aptitudes and deficiencies. From the guidance standpoint a student who wants to be an engineer but whose mathematics grades in high school are unusually poor can be said to have insufficient aptitude in mathematics *for engineering* even though his aptitude for mathematics is no less than the aptitude possessed by a non-engineering group.

A very practical distinction may be made between a deficiency and a limited aptitude in working with students, however. If the weakness can be corrected by remedial work in time to permit the student to compete in the next higher training situation, the weakness may be considered a deficiency. If the weakness cannot be corrected soon enough, it may prevent success in the next higher training situation, and may therefore be considered a problem of insufficient aptitude.

Where deficiencies in basic educational skills seem to be reflected in school performance, it would be wise to do diagnostic testing in order to see if the deficiencies can be corrected before assuming, as we frequently

do, that the problem is merely one of insufficient aptitude or insufficient general ability, or "laziness."

In Chapter 6 we will mention two inexpensive devices for identifying and remedying reading disabilities and deficiencies in study skills. These two devices, together with the Iowa Basic Skills test described in the section on achievement measures, will permit sufficient attention to student disabilities in the *early* stages of the counseling program.

Tests for Special Aptitudes

Aptitudes may be narrowly defined as potentialities which can be trained into special skills useful in later job adjustments. For example, clerical aptitude may be the potentiality which could be trained into bookkeeping or accounting or filing skills. Mechanical aptitude might under training become proficiency or skill in punch press operation, welding, pattern making, and other mechanical trades.

With this definition in mind, one can see clearly that achievement tests are often good indicators of aptitude. For example, if all students have been exposed to exactly the same amount of elementary algebra and if a few of these students are very good on the final achievement test and a few are very poor, you may say that the good students have more aptitude for algebra than the poor students. Similarly, students whose science grades are better throughout their school records than social science grades may be said to have more aptitude for science study than for social science study, for all practical purposes.

However, it is sometimes necessary and advisable to measure aptitudes directly instead of shoving the student into a competitive situation where the end achievement is used as the index of original aptitude. If we look at the occupational world into which the majority of our students will go, there are two broad kinds of aptitudes which seem important: clerical aptitude and mechanical aptitudes. But when we look at the school curriculum made up primarily of academic subjects, we find relatively few situations in which clerical or mechanical aptitudes are heavily taxed. Therefore, from the practical standpoint, we could safely confine our aptitude testing to these two broad kinds of behavior since the school situations don't provide test situations and since the most probable job adjustments of the majority of students will demand such aptitudes.

Sincere attempts have been made to develop aptitude tests in the fields

of art and music and some of the higher levels of the professions, but for a teacher's use in beginning a counseling program such aptitude tests are expensive and not immediately practical.

We are describing one aptitude test for clerical work and one for mechanical work. They are inexpensive, easy to administer, easy to score and have been used widely enough so that a large choice of norms is available. Many other similar tests are available, as may be seen in inspecting the circulars of test publishers.

Minnesota Vocational Test for Clerical Workers

This is designed to test ability for filing, general clerical work, and bookkeeping operations. The short form consists of two parts, number-checking and name-checking. It involves speed and accuracy in the checking, for similarity, of 200 paired numbers and 200 paired names.

Time: 15 minutes.

Reliability: .90.

Validity: For 138 cases the correlation between test scores and personal history ratings based on education, clerical experience, commercial training, and age at leaving highest grade was .65. For 109 high-school commercial students the correlation between test scores and commercial teachers' ratings = .58.

Norms: Percentile norms for men and women representative of an occupationally unselected group as well as of the clerical population. Age and grade norms for junior and senior high-school students are now available.

Author: Dorothy M. Andrew, under the direction of D. G. Paterson and H. P. Longstaff, University of Minnesota.

Publisher: The Psychological Corporation, 522 Fifth Avenue, New York City.

Cost: $0.04 each, or $3.00 per 100, including manual, scoring key, and norms; sample set, $0.25.

Revised Minnesota Paper Form Board Test. A test of mechanical ability.

The evidence seems to indicate that high scores on this test may be predictive of ability to learn mechanical drawing and descriptive geometry, of success in mechanical occupations, and of success in engineering courses.

Forms: Series AA and Series BB.

Time: 20 minutes.

Reliability: A single series of the test has a reliability of .85; when both series are administered, the reliability is .92.

Validity: Experiments have shown that students in engineering and allied mechanical vocations receive higher scores on this test than do non-mechanical groups; that the correlation between test scores and success in mechanical drawing is .49, and between test scores and success in descriptive geometry is .32; that this is one of the best single tests available upon which to estimate final marks in a course such as machine detail drafting.

Norms: Age norms (9, 10, 11, 12, 15, 16–25, 26–60) for males and females separately; educational group norms (elementary school, high-school seniors, high-school graduates, liberal arts college freshmen, and engineering school students by year of study) for males only; and occupational group norms (printers' apprentices and vocational school students) for males only.

Authors: Rensis Likert and William Quasha.

Publisher: Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois.

Cost: $4.00 per 100, or $0.04 per copy; $0.15 per specimen set, including manual, keys, and norms.

In the absence of a clear set of theories about aptitudes, we must often rely on general descriptions of job requirements, combined with estimates of the individual's potentialities for meeting these requirements. Recently a very interesting and practical approach to the *estimation* or *judgment* of aptitudes has been developed—the *Minnesota Occupational Rating Scales and Counseling Profile.*[4] The authors deal with six types of ability: academic, mechanical, social, clerical, musical, and artistic. Within each ability type they have set up four levels: A, B, C, and D, covering stated percentages of people in the general population. They have then gone to experts in the fields of production management, industrial psychology, and personnel work to get ratings on the level of each type of ability required for success in over four hundred different jobs. As a final step, they have grouped into "families" of jobs all the occupational titles which were judged to require the same patterns or levels of the six types of ability. The procedure also includes a step for evaluating the claimed and measured occupational interest types in terms of eight interest patterns.

[4] Paterson, D. G., Gerken, C.d'a., and Hahn, M. E. *Minnesota Occupational Rating Scales.* (Chicago: Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois).

If the student has a claimed occupational interest, he can be shown the ability and interest requirements of his choice in the profile. The counselor and student can then *rate* or *test* the student for the ability and interest types to see if his strong and weak points meet the profile for that job or for another job. If the student has no occupational choice, he may be rated or tested on the six ability types and the eight interest types. He may then be shown the families of jobs or specific jobs in which his abilities and interests are appropriate. The idea of families of occupations will be described more completely in Chapter 6 as it is related to the identification and treatment of vocational problems. Interest types are discussed also in this chapter in a later section.

As a further aid in using this device, it would be well to purchase the *Dictionary of Occupational Titles* from the U. S. Government Printing Office, Washington, D. C. ($2.00). This dictionary, prepared by the Division of Employment Security of the Social Security Agency, defines and describes the duties for about 20.000 job titles. It can be used to describe the 430 jobs in the *Minnesota Occupational Rating Scale* and it can also be used to group or classify other titles not now included in the Minnesota scale. The dictionary provides actual descriptions of job activities which may lead to a clearer understanding than most students and teachers would otherwise have.

Since the *Minnesota Occupational Rating Scale* relies heavily on expert *ratings* of levels of ability required for job success, rather than statistical predictions, it is primarily useful in general guidance work rather than specific prediction of success in a particular industry or employing company or training program. Its graphic construction features will probably make the vocational guidance phase of counseling clearer than many pages of descriptive material, both for teachers and students.

In seeking for observational situations that will permit judgments about aptitudes, you must consider not only the various standard aptitude tests, but also shop grades, work experiences, musical or art performances, skills and products, and special aptitudes, as the student is observed "in action."

Many performance tests for aptitude measurement are also available. These usually require special and expensive equipment; furthermore they must usually be given to one student at a time, which precludes a group testing program. Consequently they will be out of reach of the financial limitation of most guidance programs.

Tests for Interests

In testing for interests, for personality, or for attitudes, we use tests to which there are no "right" or "wrong" answers. Furthermore, these tests have been standardized primarily on the basis of group differences, that is, by comparing the interests of engineers with those of salesmen, or of doctors with non-doctors; or by comparing well adjusted persons with poorly adjusted persons, with respect to their family relationships; or by comparing a liberal with a conservative group with respect to political beliefs. We have touched briefly on the method of studying group differences in our discussion of statistics in Chapter 3.

This type of judgment-making, whether it is done by tests or by non-test methods of observation, is probably the most difficult and confusing aspect of clinical work. It should therefore be approached gingerly by the beginning counselor, and where possible psychological tests should be used only after the counselor has got the general feel for testing by using ability, achievement, and aptitude measures.

Part of the difficulty with this type of measurement grows out of the complexity of the psychological aspects of interest, personality, adjustment, or attitudes. Psychologists themselves cannot always agree about which types of behavior are to be given personality labels or attitude labels or interest labels. Furthermore, it is difficult to decide what evidence should be accepted as indicating the presence of personality maladjustment or occupational interests or attitudes. For example, how shy must a student be before you say he is socially maladjusted? How often must he be sullen or antagonistic toward his family before you can say he has a family problem? What kind of behavior permits you to classify him as economically liberal or economically conservative? How correct and how permanent is his statement that he is interested in becoming an engineer or a carpenter or a salesman?

When a test has right or wrong answers or yields a measure of good, average, or poor performance, the use of percentiles and other norms permit us to say that the student is as good as or better than certain proportions of the groups with which he is being compared. If, furthermore, we have agreed that for promotion or for vocational placement a student must reach a certain level of goodness of performance, we then have a standard with which the individual can be compared for purposes of guidance or placement.

But when we step out of the field of achievement or ability or aptitude tests and turn to the problem of measuring interests or attitudes or personal-

ity traits, it is more difficult to set, or agree upon, our norms and standards. We do not know, in terms of specific behavior, the standards for a "good" personality or a "desirable" attitude or a "typical" amount of interest.

In spite of these difficulties, however, much progress has been made in the measurement of these traits. The results of the psychological test techniques that are available can be shown to be superior to the ordinary estimates or judgments that we use in our daily life.

For example, if we want to find out or measure what the student is interested in, our ordinary method is to ask him what he would like to be when he grows up, or how well he likes this subject or that activity. Previous research has shown that about 50 out of every 100 students in grades 9 through 12 will change their claimed occupational choices from one year to the next and only 25 out of 100 students will have the same stated choice at grade 12 as they had in grade 9. Therefore this method of asking the student what occupation he is interested in doesn't yield very stable results. Furthermore, as most of you realize, the student's stated occupational choice is impractical or impossible for him in a large percentage of cases because of his grades, finances, ability level, or family background.

The measurement of occupational interest has a history of no more than 20 years. The first widely used interest test, constructed by Strong, has been on the market only since about 1927 or 1928. It is only in the last five or six years that we have begun to get a clear picture of the psychological development of interests as it can be seen in the test evidence.

Facts about Interests

The following general facts seem fairly well established in regard to the psychology of interests:

1. It appears that a wide range of occupations can be classified into about eight clearly defined interest types for both men and women, as given on page 115.

2. These interest types seem to be fairly well established in the individual in the age range 16 to 25, and *before* he has an opportunity to build up any extensive occupational experience.

3. Some students may not develop clearly defined interest patterns in the period during which you are working with them; and some students may never develop a type of interest which drives them to a stable job adjustment.

4. Probably more students than you realize, by virtue of their abilities,

backgrounds, and general interest make-up, could be satisfied in any one of a number of rather routine jobs.

5. The best measurements of interests are those which attempt to get the student to express choices among a wide range of *activities* to which he has been exposed, rather than asking him to express preferences for specific *occupations* about which he can have only limited information.

6. The best interest tests are those standardized on adult men and women who are successful in certain occupations.

The interest types are generally defined for men as follows: There is first a "scientific" interest which in its highest form characterizes college-trained engineers, research workers, and scientists. Then there is a "business detail" type of interest which characterizes those people who are happiest when dealing with management, clerical, accounting, or control aspects of business. There is, third, a "business contact" type which characterizes the successful salesman, promotional worker, and similar occupations. There is a "verbal" or "linguistic" type found among those people who are happiest in occupations involving the use and origin of words or graphic symbols such as advertisers, lawyers, journalists, and similar workers. A fifth type is generally called the "social service" or "welfare" type. To a large extent, ministers, social workers, school administrators, some kinds of teachers, and some kinds of social agency workers seem to be characterized by this kind of interest. There seem to be separate types of "musical" or "artistic" interests, although the evidence for the existence of these two as separate types is not so clear-cut. And there is, finally, a "sub-professional" or "skilled trades" or mechanical type in which the individual is not motivated by any strong desires to wear a white collar and is satisfied with job activities and with associations in what we commonly call the semi-skilled and skilled trades.

Among women there is a general tendency for occupational interests to be more diffused and less specialized. They follow in general the "scientific" type, the "business detail" and the "business contact" types, and the "welfare" or "uplift" type. They follow in addition a non-professional type of interest that can best be described as "prior-to-marriage job interest." In this group to a large extent are those vocations to which many women turn for two to five years before they marry, and which do not require extensive special training. There is also a creative or aesthetic interest type among women which does not have so clear a parallel type among men.

From a consideration of the matter of interests, two problems emerge—

problems which are at the heart of vocational and educational guidance. The first problem is the determination of the dominant interest type for each individual. The second problem involves relating the individual's interest type to his levels of ability and aptitude and achievement, in order to determine his possible vocational field.

Narrowing Down the Field

An example will make this clear.

First, consider the boy whose dominant interest type is of the "business detail" kind. Does he have the ability, the special achievement in social science, and the financial backing to go through a university business administration course which will lead into junior executive and eventually executive work, or which will lead into specialized work in accounting or a related field? If he does not have these levels of ability and achievement, does he have the levels necessary for a private commercial college or for a high school commercial course? If he does, what are his placement possibilities? Can he develop the proficiency to work in a high-speed business organization in a large urban area where a great deal of accuracy and speed are daily required, or is the degree of proficiency he can develop better suited to a smaller manufacturing or business organization where the competition will not be so keen?

In this example, the assumption is made that the student may first be classified as to interest type. This classification limits the occupational fields in which training and placement seem appropriate for this boy. You will not seek to make him an engineer. You will not urge him to become a doctor; you will not try him out as a salesman. After circumscribing the occupational fields, you will try to determine the level within the occupational field at which he can most effectively operate, whether this be the high theoretical level of training in business administration or the less theoretical levels of vocational training in business detail activities.

Before we describe specific tests in this field, we should clearly understand three additional points. First, occupational interests as the psychologist measures them do not seem to be highly related to school success in terms of grades at the high-school or college level. Second, if an adult is working in an occupation and has no dominant interest in the broad occupational field of which his job is typical, that adult stands an excellent chance of being dissatisfied and unhappy. Third, the main task in the junior high

school is to provide a rough classification among the already existing academic or college preparatory, commercial, and industrial curriculums. Once this three-way classification has been made with due regard for the evidence on interests, it will be possible and necessary in the high-school years to make a more refined classification on the basis of additional interest measurement.

The description of the three best tests now available for use in your program points out how this may be done. While these tests are expensive in comparison with other psychological tests, it must be remembered that they yield a good many specific scores and it must also be remembered that even though it is cheaper to ask the student what he wants to be when he grows up, planning his curriculum upon the basis of such claimed choices can be expensive and time-consuming for the child.

Strong Vocational Interest Blank for Men, Revised.

Scores on this scale indicate how closely the individual's interests correspond with those of men successfully engaged in given occupations. There are scoring scales for 35 occupations, 6 occupational groups, and 3 nonoccupational traits. Alternate forms and ages covered: 1 form. Ages 17 and over.

Nontimed.

Reliability: Average reliability coefficient by the odd-even technique was .88; by the test-retest method with one week between testing, .87; by the test-retest method with five years between testing, .75.

Validity: See discussion in test manual and references number 3 and 4 at the end of this chapter.

Norms: Based on the scores of successful representatives in specified occupations.

Author: E. K. Strong, Jr., Stanford University.

Publisher: Stanford University Press, Stanford University, California.

Cost: Tests, $2.00 per 25; report blanks, $0.50 per 25; scoring keys, $1.00 for one key, $0.80 each for 2 to 9 keys, $0.70 each for 10 or more keys; machine-scorable answer sheets, $2.25 per 100; machine-scorable scales, $1.00 or $5.00 per scale. Scoring services at $0.50 to $1.40 per blank, depending upon the number of keys scored, are available at: Stanford University, California; The Psychological Corporation, 522 Fifth Avenue, New York City; Testing Bureau, University of Minnesota, Minneapolis, Minnesota.

Strong Vocational Interest Blank for Women

Scoring keys are available for 17 occupations, and one non-occupational trait. Alternate forms and ages covered: 1 form. Ages 17 and over.

Nontimed.

Reliability: Corrected odd-even reliability coefficient range from .74 to .94, based on records of 500 married women, average age 38.2 years, average grade reached in school 12.4.

Validity: See discussion in test manual and references number 3 and 4 at the end of this chapter.

Norms: Based on the scores of successful representatives in specified occupations.

Publisher: Stanford University Press, Stanford University, California.

Cost: Same as for *Strong Vocational Interest Blank for Men.*

Kuder Preference Record. Form A and Form BB.

The purpose of this test is to determine the types of activities which the young person prefers. The manual which accompanies the test lists typical occupations which may correspond to the preferred type of activity. Scores are designed to be recorded in the form of a graphic "profile" showing the percentile rank of the student for each type of activity. With Form BB scores are obtained for the following types of activities: (1) mechanical, (2) computational, (3) scientific, (4) persuasive, (5) artistic, (6) literary, (7) musical, (8) social service, and (9) clerical. The earlier Form A does not include numbers (1) and (9).

Alternate forms and grades covered. Form A, 3 editions (differing only in method of scoring); Form BB is designed to supplant Form A. Grades covered: 9th to adult.

Time: No time limit. It is stated that college students usually require about 40 minutes to complete Form A, and about 30 minutes to complete Form BB. High-school students ordinarily require a somewhat longer time.

Reliability: The reliabilities of the 7 scales included in Form A, as determined from a group of 84 college students, are: (2) .85, (3) .87, (4) .90, (5) .90, (6) .90, (7) .88, (8) .84, Preliminary results from small groups on Form BB (published in 1942) indicate that the reliabilities of the 9 scales are in the neighborhood of .90.

Validity: Evidence on the validity of the *Preference Record* is, at present, limited. Median "profiles" (on Form A) of groups of persons actually

engaged in 10 different occupations in general confirm the classification of occupations and areas of interest which the authors set up, as do the median profiles (on both Form A and Form BB) for groups of college students who have chosen their occupations.

Norms: Percentile norms based on scores of small groups of college students. Median "profiles" of college students, as described above. Norms by age and sex were computed and found to show no distinction between age levels or sexes.

G. F. Kuder, U. S. Civil Service Commission.

Publisher: Science Research Associates, 1700 Prairie Avenue, Chicago.

Cost: Form BB—test booklets (which can be used many times), $0.25 each; answer pads, $0.05 each; profile sheets, $1.25 per 100; specimen set including manual, key, and norms, $0.35. Form A—self-scoring, same prices as Form BB. Form A—machine-scoring, answer sheets $2.50 per 100; scoring set $6.00; other prices same as Form BB.

Interest Questionnaire for High-School Boys

In this questionnaire there are 234 items regarding occupations, school subjects, activities, magazines, prominent men, etc., which yield scores in the following courses of study: academic, technical, and commercial. Designed for use with junior high-school boys.

Nontimed.

Reliability: The corrected odd-even coefficient for 75 pupils, 25 in each of the 3 curricula, was .95 for technical key, .93 for commercial key, and .86 for academic key.

Validity: Using an arbitrary critical score on each of the 3 keys, the authors found that 80.5 per cent of the pupils with technical interests, 75.5 per cent of those with commercial interests, and 73.6 per cent of those with academic interests were placed in the proper curriculum by this questionnaire.

Norms: A score of 235 on any of the 3 keys indicates "neutral" interest in the given curriculum; a score greater than 235, definite preference; a score less than 235, absence of preference for the curriculum.

Authors: O. K. Garretson and P. M. Symonds.

Publisher: Bureau of Publications, Teachers College, Columbia University, New York City.

Cost: $3.00 per 100.

Personality Indicators

We have already indicated that the problem of estimating or measuring personality is technically difficult. However, an awareness of these difficulties does not prevent us in our daily life from passing judgment on the personalities of those with whom we associate or those whom we supervise. In fact, our common vocabulary is full of such adjectives as "persevering," "bashful," "submissive," "lazy," "shy," "quick-tempered," and literally hundreds of other words which we apply freely in our descriptions of other people and ourselves.

In testing for personality and in predicting from personality tests, we cannot say definitely how much of the personality traits and what combination of personality traits make for successful school achievement or successful job adjustment. Just as two or more people may use the same trait word, such as "lazy" or "persevering" or "well-adjusted," without always agreeing on the types of behavior which the adjective may describe, so it is that there is some difficulty in agreeing upon standards for the scores of persons who take a personality test.

In spite of all these difficulties of definition and quantitative measurement, we cannot get away from the necessity of doing as good a job as possible in studying the personalities of our students. Studies in industry have indicated that a substantial majority of workers who leave jobs or who are discharged from jobs are deficient chiefly in human relations, skills, or personality adjustment. Teachers are familiar with the type of difficult or maladjusted child whose abilities and achievements may be adequate to the tasks at hand but who fails to adjust well in the school situation.

There is another interesting reason for concern with the personality adjustments of our students. In a previous section we described the dominant interest types. In the same research studies where these interest types were defined there was a tendency for people having the various interest types to have related personality patterns.

For example, students whose dominant interest type was in welfare or uplift activities were economically liberal in outlook, gregarious, and socially sure-footed in a wide range of individual social skills. Students whose dominant interest type was in business contact fields were equally gregarious and sure-footed in social skills but were markedly conservative economically and less motivated with concern for the welfare of others.

Students whose primary interest type was in business detail activities were

far less gregarious and socially skillful than either of the two groups mentioned above. They were about as economically conservative as the business contact workers. Thus, we begin to see the possibilities that occupational selection and occupational adjustment are based not only on general ability and aptitude and special achievement, but also upon measured occupational interest types and to a certain extent measured or estimated personality traits.

We might say that there are two reasons for studying personality. First, we must be in a position to identify the maladjusted student or the maladjusted worker whose maladjustment has nothing to do with his ability or aptitude, but is preventing effective use of his ability. Excessive daydreaming, temper tantrums, excessive shyness, bullying or other too-aggressive behavior, and the various attention-getting devices used to seek sympathy are evidences of this kind of maladjustment. Second, we must make some attempt to determine the appropriateness of the person's personality type for the broad occupational field into which he may go.

Changing the Leopard's Spots

In the case of these latter personality characteristics, one other problem should be made clear. It can best be summarized by considering the old saying, "the leopard doesn't change his spots." Frankly, we do not know the curve of development for what we might call social adjustment. We are not sure where it begins, we are not sure how rapidly it grows, and we are not sure when one has reached one's maximum social adjustment. This statement is equally true for what we call emotional development.

In regard to family adjustments, there seems to be a general tendency for people through the approximate age range of 15 to 20 to begin establishing their independence of mother and father. Unless parents handle this period of years wisely, the child may remain overdependent on the parent or may react against the parents to the point of an open conflict. But again we do not know the beginning rate of development, or the end point of what might be called a transition to normal independence.

Though our knowledge is thus limited, it seems to be true that individuals arrive at a relatively fixed level of social adjustment, emotional adjustment, maturity, or independence, toward the end of adolescence; with minor variations around this level of behavior, they act from then on in a more or less predictable fashion. These minor variations may be caused by a con-

certed effort at training or they may be called forth by accidental changes in the individual's environment.

For example, the very shy student can be taken in hand and trained out of some of his shyness by a concerted effort on the part of a counselor who will teach that student social skills and techniques of getting along with people; or the shy student may move to another school and develop improved social adjustments pretty much on his own. It is improbable, however, that this shy student will ever become the life of the party or will ever become gregarious enough and interested enough in people to develop into a high-pressure salesman or promotional worker. In other words, the leopard's spots may fade or get a little bit brighter but they never change position or pattern to any great extent.

Generally speaking, there are about four standard methods of measuring or evaluating personality characteristics and personality adjustment. These are: (1) rating scales on which outside observers rate the student's possession of defined personality traits; (2) intensive interviewing in which skilled clinical workers such as psychiatrists, social workers, clinical psychologists, or psychoanalysts use the interview as a tool to probe the personal adjustments and personality characteristics of an individual; (3) anecdotal records which represent a relatively new and fruitful field for measuring or estimating personality, and (4) paper-and-pencil tests of personality which the student fills out himself.

Rating scales and anecdotal records are inexpensive. They require no greater outlay than is necessary to mimeograph forms. They do require, however, considerable work and training on the part of the teachers who will use them. Paper-and-pencil personality tests are widely available, but from this wide choice, there are only a few which you should consider.

Intensive interviewing is impractical primarily because of the time and special training necessary to learn this kind of interviewing skill.

The anecdotal record will probably be the best beginning and continuing technique for studying the personality development and personality characteristics of your students. Later on, after you have battled with each other in an attempt to agree upon definitions of personality traits and the significance of observed behavior, it will be time to introduce a paper-and-pencil test into your total program.

The anecdotal record is essentially an attempt to describe a significant bit of behavior which you have seen when the student is "in action." This

description should at first be free so far as possible from a *judgment* as to the meaning or goodness or badness of the behavior observed. An excellent and careful description of the use of the anecdotal record has been given in a book by Jarvie and Ellingson, cited in the bibliography at the end of the chapter.

Anecdotes can be collected from anyone who has contact with the student and should not be confined to classroom situations alone. They should also stress favorable behavior, to counteract our general tendency to notice unfavorable behavior at the expense of the favorable in the student's development. After anecdotal records have been built up, teachers can often see developmental patterns, weaknesses, strengths, and possible solutions of problems in the cases of individual students.

Many people criticize paper-and-pencil personality tests because the student can falsify his responses to the test. While this may be true, and while it is sometimes a reason for not giving a personality test to all students, the fact remains that if the teacher or counselor has established good relations with the student, and if the student is actually seeking the help of the counselor, the paper-and-pencil test will yield surprisingly good results. Since one of the basic principles of good counseling is that the counselor can proceed only if he has good relations with students, the chances are that the use of paper-and-pencil tests will not be misleading, but actually illuminating. It is also to be clearly remembered that the interview situation is subject to some of the same defects, since here too the student may seek to give false or misleading or uninformative answers and impressions.

As we have pointed out, there are no right or wrong answers in a personality test. The interpretation of personality test scores then becomes a matter of importance. The highest score need not necessarily be the best score. The best adjusted student may be the one who makes about an average score on a personality test. Therefore, counselors should study carefully the manual of interpretations which accompanies the personality test.

Since many personality tests are made up of a group of questions which could have been read off to the student in a long oral interview, it is sometimes interesting to go back to the specific items to which the student may have given an unfavorable response and use that item as a basis for further questioning to bring out in greater detail the nature of the personality problem or the personality type.

Meanings of Test Scores

The score on a personality test can usually be considered to tell only that a maladjustment does exist, or the general area of the maladjustment, rather than *what* the maladjustment is. In other words, if a student has an unsatisfactory score on a test designed to measure *family adjustment,* for example, you cannot tell, except by further questioning, whether the conflict is between the student and a parent, between both parents with a resulting effect on the student, or between the student and brothers or sisters; nor can you tell, by the score alone, the cause of the conflict.

Many counselors who look at a personality test score that is unfavorable cannot find any evidence of this maladjustment when they talk to the student. Therefore, they are inclined to say that the personality test score is in error or that the personality test is no good. In situations of this kind you see most clearly the discrepancies between the two types of judgment-making—those stated in the numerical terms of a test score, and those taking the form of a descriptive or adjectival classification by the observer.

It does not necessarily follow that either the personality test or the interviewer's judgment is wrong. The student might not be telling the interviewer the truth where he had told the truth on the test. The test may be measuring one aspect of personality whereas the interviewer's questions may be touching on a different aspect of personality. Or the interviewer may not be skillful enough in asking questions to elicit the type of response necessary to verify the test score.

Too frequently we fall into the error of regarding our own judgment as superior to the inferences we get from a test. Since actually much time has gone into the construction and standardization of the test, we should be very cautious in rejecting the test evidence in the light of the less carefully made judgment we may derive from a brief talk with the student.

We are describing only two pencil-and-paper personality tests. The first has been available for several years in published form and stands up well in actual use by trained counselors. The second has been made available just recently in published form and shows promise of working out well in guidance programs. It seems wise also to repeat an earlier caution. These tests should not be introduced in new testing programs for group use. They may be held in reserve for testing individually a few students with whom the counselor has established objective and friendly relations. Later on they may be more widely used among the student group.

The Adjustment Inventory. Student form.

This scale has 140 items dealing with behavior in the fields of home, health, social, and emotional adjustment. Grades 9-16.

Nontimed.

Reliability: The corrected odd-even coefficient, based on 258 college students, was .93

Validity: High-school and college counselors and administrators selected a group of "well-adjusted" and a group of "poorly-adjusted" students. To these students the *Adjustment Inventory* was administered. The critical ratios of the differences between mean scores of these 2 groups were: home adjustment, 7.02; health adjustment, 6.58; social adjustment, 5.52; emotional adjustment, 5.32.

Norms are available for high-school and college students.

Author: Hugh M. Bell, Chico, California, State College.

Publisher: Stanford University Press, Stanford University, California.

Cost: $1.75 per 25; $1.75 per 100 machine-scorable answer sheets; $0.15 per specimen set.

The Personal Audit

Form L of this scale includes 9 subtests, each consisting of 50 items. High scores on the subtests indicate respectively: sociability, suggestibility, tendency to rationalize, tendency to anxiety or excess emotionality, tendency to personal intolerance, flexibility or docility of attitudes, tendency to irritability, tendency to excessive sexual emotionality and conflicts, flexibility of attitudes, and tendency to think or worry about unsolved problems. A shorter form, Form S, consists of the first 6 subtests mentioned above. Grades 11 and 12, and college.

Nontimed. Requires about 40 to 50 minutes for Form L; 25 to 40 minutes for Form S.

Reliability: Corrected odd-even reliability coefficients for the subtests vary from .90 to .96, based on scores of 442 college students.

Validity: Intercorrelations (442 cases) of subtests were found to be low, indicating that relatively independent factors are being measured. Individual items were chosen from the preliminary longer tests by computing critical ratios for upper and lower quartiles (400 cases). No item with a critical ratio of less than 3.00 was included in the final test.

Norms: Preliminary percentile norms for high-school boys aged 15-19

(106 cases), high school girls aged 15-19 (116 cases), college men (236 cases), college women (206 cases), and male industrial workers (500 cases).

Authors: Clifford R. Adams and William M. Lepley, Pennsylvania State College.

Publisher: Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois.

Cost: Form S, $0.10 each; Form L, $0.15 each. Specimen set, including manual, key, and norms: Form S, $0.15; Form L, $0.20.

Indications of Physical Status

In one of the personality tests described in the preceding section, there is included a score for health adjustment. It is sometimes quite illuminating to ask for medical records of those students who make a "bad" score on this health adjustment scale. Beyond such a technique, counselors are almost completely dependent upon medical men for inferences and diagnoses about health conditions. These medical men are skilled in the use of judgment-making devices which counselors should never use. The counselor may get clues or symptoms of health conditions or health problems by observation of absences from school, frequent colds, or other indications of general health conditions, but beyond these observational skills, he cannot use the standard and elaborate judgment-making techniques of medical science. However, it is important that he know where to turn to get information concerning the health of those with whom he deals.

Judging the Socioeconomic Background

The background of the student represents an environmental condition with which educators are inevitably concerned. The occupational level of the father and the mother, the education of the father and the mother, the number of books in the home, the number of people living in the house —all these factors are indirect measures of the economic and cultural level at which the family operates. It is important to objectify or quantify certain aspects of the family background to make possible statistical studies and to gain a clearer understanding of the family resources and cultural levels. Use of the instruments described here will facilitate this task. They are rating scales to be used by outside observers. and they have a satisfactory degree of reliability and economy.

Quite often the same purpose can be achieved by setting up a basic and short questionnaire which the student himself can fill out, at the time of entrance to school or at the time of a counseling interview. It should include: father's occupation; parents' birthplace; parents' education; number of brothers and sisters and their educational or occupational status; hobbies; types of reading interests; and student's work experiences.

The Minnesota Home Status Index: A Scale for Measuring Urban Home Environment

The author's purpose was to construct a scale that would "give numerical expression to the nature and extent of variation existing in living conditions in urban homes." Home status indices: Children's Facilities, Economic Status, Cultural Status, Sociality, Occupational Status, and Educational Status.

Nontimed.

Reliability: The corrected split-half coefficient was .92.

Validity: The correlation of the *Index* with the Sims scale (see below) was .94.

Norms: The scale was standardized on 5- to 14-year-old children. Raw scores are converted into sigma score equivalents (that is, standard scores based on the standard deviation unit).

Author: Alice Leahy, University of Minnesota.

Publisher: University of Minnesota Press, Minneapolis, Minnesota.

Cost: $2.00 per 100; $0.10 per specimen set.

Sims Score Card for Socioeconomic Status. Form C.

The author's purpose was to provide "a simple, convenient, and objective device for ascertaining and recording the general cultural, social, and economic background furnished by the homes of school children." Grades 4-12.

Nontimed.

Reliability: Correlation of .94 for records of 2 observers.

Validity: See above under *Minnesota Home Status Index.*

Norms: Percentile ranks and descriptive interpretation based upon the scores of an unselected group of 686 6th, 7th, and 8th grade pupils from New Haven, Connecticut, schools.

Author: V. M. Sims, University of Alabama.

Publisher: Public School Publishing Company, Bloomington, Illinois.

Cost: $0.01¼ each; $1.00 for 100; specimen set $0.15.

American Home Scale

This socioeconomic scale provides an objective estimate of an individual's home background and contains sub-scores on cultural, aesthetic, economic, and miscellaneous factors. The *Scale* has been used extensively in conducting socioeconomic surveys of individual cities and areas. This test discriminates between different economic and sociological groups.

Reliability: The coefficient or reliability is .91, based upon the Kuder-Richardson *t* formula.

Validity: In one experiment 20 leading school officials were asked to rank the seven local high schools from the school possessing the smallest proportion of students from homes of high socioeconomic status to the school containing the largest proportion. Reliability of these rankings was .94, and when these were correlated with the average *American Home Scale* scores of senior students of the same schools, the rank order correlation was 1.00, with the exception of the smallest school, containing only 18 seniors.

Norms are available on 17,000 cases in 42 cities well distributed throughout the United States. Norms also have been computed on the basis of distribution of school averages to enable the school administrator to determine the relative standing of particular schools, as well as of particular students.

Authors: W. A. Kerr, RCA Manufacturing Company, and H. H. Remmers, Purdue University.

Publisher: Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois.

Cost: $0.05 each; hand-scoring keys, $0.20 each; machine-scoring keys, $0.30 each; specimen set, $0.30.

Selected Bibliography

1. Bingham, W. V. *Aptitudes and Aptitude Testing.* Harper and Brothers, New York, 1937. 390 pp. Price: $3.00 (t) (*).

   Good theoretical discussion of measurement problems. Appendix contains many test descriptions. Good practical discussion of abilities needed in world of work. Author uses "aptitude" in a general unrestricted sense. Not easy reading because of technical nature of content, but a necessary reference after study of statistics and principles of measurement.

2. Buros, O. K. (editor) *The 1940 Mental Measurements Yearbook.* 32 Lincoln Avenue, Highland Park, New Jersey, 1941. 674 pp. Price: $6.00 (t).

A collection of criticisms, pro and con, by experts in the field who have supposedly used the tests they criticize. Good source of information about tests, but sometimes confusing when critics can't agree.

3. Darley, J. G. *Clinical Aspects and Interpretation of the Strong Vocational Interest Blank.* Psychological Corporation, 522 Fifth Avenue, New York, 1941. 72 pp. Price: $1.00 (t) (*).

   A monograph devoted entirely to results of the use of one published interest test. Practical suggestions for interest test interpretation. Illustrative case histories relating interest scores to other measures. A necessary reference if the test described is to be used.

4. Fryer, Douglas. *The Measurement of Interests.* Henry Holt and Company, New York, 1931. 488 pp. Price: $4.50 (t).

   A critical review of the significent research in interest measurement to the date of publication. Excellent source book and summary volume. Note especially the poor results of studies of claimed interests.

5. Hawkes, H. E., Lindquist, E. F., and Mann, C. R. *The Construction and Use of Achievement Examinations.* Houghton Mifflin Company, New York, 1936. 496 pp. Price: $2.40 (t) (*).

   An excellent, careful treatment of the problems of constructing achievement tests in objective form. Procedures and problems are not simple, but if teachers want to construct their own examinations, the book is a necessary reference. Special discussion of each subject-matter field.

6. Jarvie, L. L. and Ellingson, Mark. *A Handbook on the Anecdotal Behavior Journal.* University of Chicago Press, 1940. 71 pp. Price: $1.25 (*).

   A careful description of the development and use of anecdotal records in a post-high-school program. Can easily be adapted for high school use. Clear statement of problem of training teachers in the use of the system.

7. Paterson, D. G., Schneidler, G. G., and Williamson, E. G. *Student Guidance Techniques.* McGraw-Hill Book Company, New York, 1938. 316 pp. Price: $3.00 (t) (*).

   A careful and complete description of the costs, reliability, validity, and norms of a wide range of tests for use in high school and college counseling programs. Also contains short descriptions of types of student problems and means of helping students. Useful eventual reference, but not immediately essential.

8. Symonds, P. M. *Diagnosing Personality and Conduct.* Appleton-Century Company, New York, 1931. 602 pp. Price: $4.00 (t).

   A critical review of the significant research in personality evaluation and measurement to the date of publication. Excellent source book and summary volume.

9. Tiegs, E. W. *Tests and Measurements in the Improvement of Learning.* Houghton Mifflin Company, New York, 1939. 490 pp. Price: $2.75 (t).

   Readable discussion of measurement problems in the classroom, even though the author seems to overemphasize the value of unstandardized teacher-made examinations. Treatment of topics is repetitious, except for last nine chapters discussing ability grouping, marking, promotion, and measurement problems.

10. a. Bureau of Educational Research and Service, Extension Division, State University of Iowa, Iowa City, Iowa.
    b. Cooperative Test Service, 15 Amsterdam Avenue, New York City.
    c. Psychological Corporation, 522 Fifth Avenue, New York City.
    d. Science Research Associates, 1700 Prairie Avenue, Chicago.
    e. Stanford University Press, Stanford University, California.

    Write these marketing agencies for their test catalogs, and ask to be put on their mailing list.

PART THREE

CHAPTER 5. *Starting the Counseling Program*

The first two parts of this book were devoted to laying a foundation for counseling. They dealt with an understanding of guidance functions and methods of studying students. It is now time to discuss the identification or diagnosis of student problems and the methods of treating them. Before we do this, however, it is necessary to mention briefly a few organizational problems in starting the counseling program.

The World of Work

Since a great deal of counseling involves discussions of occupations, there is an immediate need in the school system for reliable occupational information. To understand jobs and job requirements, teachers may turn to a variety of sources. The Occupational Information and Guidance Service of the United States Office of Education, Washington, D. C., has a wide range of free bibliographical material available on request.

Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois, through their Occupational Information System, provides schools with excellent current occupational materials at a reasonable charge. Their Occupational Information System for school use includes:

1. *Vocational Trends* (monthly), a magazine of current occupational facts and forecasts, written in a readable, interesting style and profusely illustrated.

2. The American Job Series (monthly), a series of occupational monographs, each outlining basic characteristics and trends in an important industry, trade, or profession.

3. *The Vocational Guide* (monthly), an annotated bibliography and index of the best current vocational literature.

4. *Occupational Reprints and Abstracts* (monthly), three to five reproductions each month of inaccessible or costly materials high in vocational value; useful for reference work, counseling, and classroom use, and as a permanent supplement to the school's collection of occupational and guidance materials.

5. *Guidance Plans and Methods* (quarterly) are portfolios which show various methods and techniques for using occupational information effectively.

In addition to the Occupational Information System, Science Research Associates publishes the *Occupational Outlines of America's Major Occupations.* This set of outlines gives the pertinent vocational facts on the 100 dominant occupations in modern American life—the fields of work where three out of every four Americans earn their livings.

In these sources, references to many books in occupations will be found for possible addition to school libraries.

We have already mentioned the *Dictionary of Occupational Titles* as a source of job descriptions for over 20,000 jobs. The local full-time or part-time state employment offices affiliated with the United States Employment Service can also provide figures on job supply and demand in the local labor market.

The Record-Keeping System

The simplest record-keeping system begins with a blank manila folder with a tab for the student's name. While many elaborate printed forms have been developed for cumulative records, they are not necessary and not always practical. The small school system does not have a big enough clerical staff to maintain these forms, which require copying of information to the central folder from many separate sources and at many different times. The small school system also cannot ordinarily collect the wide range of information demanded in the printed folder form.

A short mimeographed form such as the one described in the section on Socioeconomic Background, in Chapter 4, will be the first to go into this blank folder. Such a form can be filled out by all entering students at the time of registration. Whenever an old student is called in, or comes in

for counseling help, he will first fill out such a form and his folder will be started. If it seems desirable to put the entire school on a new record-keeping basis, students in each homeroom may fill out a similar form early in the school year and a folder file can thus be started simultaneously for all students.

The students' class schedules will probably go into the folder next, since these are assembled quite early.

If new students are tested in a group, the test results or test booklets are the next things to go in the folder. As students are called in or come in for counseling, they may also be tested and the test booklets filed. If testing is done in the smaller groups of the homeroom or guidance classes, the booklets will be filed in the same way. If tests have been selected which use percentile norms it is often useful to draw up a test profile sheet and have it mimeographed. This sheet will list: the student's name; the date each test was given; the name of the test; the raw score; the percentile score; the norm group from which the percentile was taken; and the plot of the percentile on a graphic, horizontal scale ranging from 0 to 100 and marked off in units of 10.

As term grades begin to accumulate, copies may be put in each student's folder. Forms for recording grades are usually already set up; if possible, carbon copies should be made for filing in the folder.

To provide a flow of anecdotal records, pads of 5½ by 8½ inch mimeograph paper can be prepared with blanks for the following items: student's name; name of interviewer, or counselor; date of observation or interview; subject discussed with student or behavior observed; and comments or summary. These pads can be made available to all members of the school staff who may come in contact with students. The staff members should be instructed in the use of the form. Whenever a sheet is filled out for any student, it can be left in the school office for filing in that student's folder at the end of the day.

It will work most efficiently if these records and folders are maintained in the central office of the school. Gradually material will be assembled about the student's general ability (test scores); achievement (grades, tests, lists of hobbies, extra-curricular activities, work record); special aptitudes (tests, anecdotes, shop grades, other grades, extra-curricular activities); interests (tests, claimed occupational choices); personality (anecdotes, tests); physical status (anecdotes, health records, and medical examination); socio-

economic background (questionnaire filled in by student). With these materials, actual counseling will be done by selected members of the school staff, or perhaps at first by only one member of the staff.

All record keeping is designed to aid in identifying student problems and determining ways of solving them. To indicate in each folder what problems the student has had, and what was done about them, two additional types of records are needed. The first is a mimeographed check list, on which are briefly described the usual types of student problems, with write-in spaces for unusual or unique problems. The next part of this book lists and describes a wide range of problems that could be incorporated into such a checklist as a time-saving device.

Sheets of blank ruled paper of uniform size should be provided for the counselors so that each may write up his case notes and describe in his own words what he did to help the student, and what he and the student discussed in the interview.

This type of material immediately raises a question. It is often highly confidential material that should not be known by any and all people who can get into the central files. Yet for economy and efficiency the central filing system is best. If the students feel that what they say will be seen by school administrators or by any one who can get into the files, they may, quite justifiably, refuse to be frank. The problem can sometimes be solved by giving the counseling staff member primary responsibility for the file and requiring that he approve the release of a particular folder that is requested. The counseling staff member may then release the folder after removing confidential material, or may summarize the requested information in writing without releasing the entire folder.

The Choice of a Counselor

This brings us immediately to another vital question: who is the counseling staff member? All other things being equal, the staff member who must administer discipline and control the student group will be less efficient in counseling because students may fear him or view him with suspicion. This fact *tends* to rule out the principal, superintendent, dean of boys, or dean of girls as the primary counseling staff member. All other things being equal, the staff member to whom students normally turn for help—the more popular teacher—is the better potential counselor, if that teacher is not a confirmed sentimentalist. If some background in psychology, tests, and

statistics can be found among these popular teachers, the way is paved for the development of an adequate counselor, who can learn the necessary skills by his own efforts.

Such a process of selection implies that a guidance committee drawn from the faculty will never do much actual guidance or counseling. The time to have a guidance committee is *after* the selection and development of a staff member who can lead the committee effectively.

One of the most effective ways of getting the guidance point of view across to the faculty is the staff clinic or staff consultation about an individual student. In these clinics, which are led by the counseling staff member, all the relevant material about the student is presented to his teachers and other interested staff people. Then the group discusses the findings to work out a plan of action that will help the student to correct any problems that exist.

In this way, teachers get a broader view of their pupils and come to understand the meaning of case records and the procedures for identifying and solving student problems. Out of such clinics, the administrator and counseling staff member can pick interested teachers who will eventually come to serve as a special group of advisors for students sent to them from the chief counselor. Depending upon the size of the school and the background of the teachers, the guidance program will begin to run smoothly and efficiently in two to six years of in-service development.

The Absolute Minimum Testing Program

It is unlikely that you will be able to start with a personnel program which includes judgment-making devices for each one of the seven important aspects of the student's life discussed in Chapter 4—ability, achievement, aptitudes, interests, personality, physical status, and socioeconomic background. Some consideration of the minimum elements of a beginning program is therefore called for. You can do better case work and better clinical work if your absolute minimum of material contains the following information.

You need a good measure of general scholastic ability. This test should be one with good percentile norms. If you can take the time to give it to a large group of your own pupils and establish separate norms for each class and sex, you will increase its value in your program. In addition to the administration of the test, it would be valuable to plot a scatter-diagram

relating the raw test scores to the student's accomplishment to date. This graphic analysis should facilitate the isolation of special pertinent problems of relationship between ability and achievement for the individual students in your own school situation.

If you have all the student's grades and are willing to spend the time necessary, you can yourself combine them into a single index of achievement, which, used in conjunction with the specific grades, will give you valuable information for guidance purposes. If these grades include measures of achievement in shop courses, or in commercial courses, you may make some inferences about special abilities not emphasized in the ordinary academic subjects. If there are constant low grades in particular academic subjects, you can, after careful study, make some inferences about possible aptitude or achievement deficiencies.

In regard to occupational interests, the minimum battery must include an interest inventory. We suggest that it be chosen from among the three described earlier.

This means that at first you will not purchase special aptitude tests, diagnostic tests, achievement tests, or personality tests. For personality appraisal, you will use either anecdotal reports or teachers' ratings. For analysis of socioeconomic background, you can mimeograph, quite inexpensively, a 3- or 4-page questionnaire that will serve. The records and test supplied need not, therefore, cost more than 25 to 50 cents a student, and may actually cost less than that.

This, we believe, is the indispensable minimum with which you can do effective guidance work. As your program expands, as you find that you have greater skill in identifying and solving student problems, as you have staff clinics on student cases, you will find that the program grows naturally and easily in terms of additional testing and more intensive case work. With this minimum battery, you will have plenty of material with which to learn clinical skills and you will not find yourself swamped with a mass of test scores that are at first rather difficult to comprehend and to synthesize into a meaningful picture.

The most expensive type of measurement will be the interest tests. But remember that the less expensive judgment-making device in this area (claimed vocational choice) is so unreliable and undependable as to be costly to the student in the long run. You can't measure the value of a test in dollars and cents only; certainly the student will suffer if you fail to use good

judgment-making devices. For each item of direct expenditure for testing, you should consider the quality of the possible less-expensive substitute. Remember also that an elaborate record-keeping system may be equally costly, and less justifiable than a program of tests used in conjunction with a simpler record-keeping system.

Selected Bibliography

1. Anderson, H. D. and Davidson, P. E. *Occupational Trends in the United States.* Stanford University Press, California, 1940. 616 pp. Price: $6.50. Abstracted by Science Research Associates, 1700 Prairie Avenue, Chicago, Illinois. 52 pp. Price: $0.60.

   Excellent condensation of an equally excellent source book describing changes in the world of work. Combined with current occupational materials, the labor market becomes understandable.

2. Strang, Ruth. *Counseling Technics in College and Secondary School.* Harper and Brothers, New York, 1937. 159 pp. Price: $2.00. (t)

   A discussion and review of personnel records, case studies, interviewing, observations, rating scales, autobiographies as techniques of diagnosis and counseling. No discussion of tests and measurement problems.

3. St. Paul Central High School, J. E. Marshall, Principal, St. Paul, Minnesota.

   An outstanding example of a school that reduced its mortality rate, revised its curriculum, and trained teacher-counselors on an in-service basis. Mimeographed descriptive and technical material is available.

4. Traxler, A. C. (editor). *Guidance in Public Secondary Schools.* Educational Records Bureau, 437 West 59th Street, New York, 1939. 329 pp. Price: $2.00.

   Report of a special demonstration project, in which each school worked through its own guidance problems.

5. Wendell Phillips Junior High School, Clarence Blume, Principal, Minneapolis, Minnesota.

   Guidance on a clinical and case study basis can be done in the junior high school, as this school demonstrates. Write for descriptions of the program.

CHAPTER 6.

Identifying Students' Problems

Now that we have prepared to collect a great deal of information about each student, we have to figure out what it will mean and what it will tell us. We have to sort out symptoms from causes, and we have to put the material together so that a helpful plan of action or treatment can be worked out. In other words, we must make a series of judgments or diagnoses regarding the student's total adjustment.

General Guideposts of Diagnosis

Before discussing the diagnosis or identification of specific problems, we need to understand a few general facts. In the first place, what student problems may be expected to occur most frequently? Just as some forms of illness or temporary health maladjustment occur more frequently than others, so do some forms of student problems occur more frequently than others. In order to know what to look for, then, it is helpful to know what other counselors have found in general clinical experience.

In one research study, almost two-thirds of the school population was reached by two clinically-trained counselors in the General College at the University of Minnesota. This group of students was quite typical of high-school seniors in large urban centers. Because the counselors had gone out to reach as many students as possible rather than wait for the "problem children" to come to them, their findings represent a fair cross section of

general student problems. In this study, vocational problems occurred most frequently. Educational problems showed the second highest rate of occurrence. Social or personal adjustment problems were third in order of occurrence. Financial problems came next; family adjustment difficulties were fifth, and health problems were the least frequent. It is quite likely that this order of frequency would be found to exist if other *representative* student groups were studied in the same manner.

Counselors must not be misled by lists which give a high ranking to a specific problem such as reading disabilities or study habits; in such lists, the students usually represent a special group of "problem children," such as school failures, rather than a representative sample of students in general.

The knowledge that some problems will occur more frequently than others does not automatically make you a good counselor but it does give you some idea of what to look for in the mass of material that you have collected about your students. You would tend to look for vocational problems first and health or physical problems last. This makes for a somewhat greater efficiency in organizing case material.

The general classification of a problem type such as vocational problems is somewhat similar to the doctor's general classification of a health disorder such as respiratory difficulties. It does not tell you, and it is not intended to tell you, what the specific problem within the problem type may be. It is merely your first guidepost.

We may mention a few of the more frequent specific problems within each of the six problem types. With vocational problems they would be as follows: (1) The most frequently occurring specific vocational problem is usually a discrepancy between the student's ambitions and his abilities. (2) There is the problem of misinformation or inadequate information about job requirements and job opportunities. (3) And there is sometimes a problem of complete indecision which may grow out of several possible choices, or may simply reflect sheer lack of any occupational information.

Specific educational problems are as follows: (1) If the student has made a vocational choice out of line with his abilities, it usually follows that his educational plans are out of line with his abilities, and therefore represent a discrepancy between educational ambitions and abilities. (2) Underachievers represent a big specific educational problem and seem to occur about twice as frequently as (3) overachievers. (4) Lack of educational motivation, (5) deficient study skills, and (6) inefficiency in basic skills such

as reading or arithmetic or spelling are also found rather frequently as specific educational problems.

Among the social or personal adjustment problems a sizable proportion of students suffer from (1) feelings of inferiority or lack of self-confidence. (2) About the same number lack the basic social skills necessary to give them a good social adjustment. (3) Another group will have certain personality traits which tend to antagonize their contemporaries and might come to antagonize employers or co-workers. (4) Estimates range in regard to the percentage of students in need of skilled psychiatric treatment but in the study referred to, approximately 4 per cent of the students seemed to be in serious need of this type of medical attention which counselors cannot provide.

The specific financial problems are fairly clear-cut; this problem type will probably loom larger in some communities than in others. The three outstanding specific problems are: (1) too much outside work to permit achievement up to capacity; (2) restrictions on educational-vocational planning because of inadequate financial resources; (3) or educational-vocational plans dependent upon receiving financial aid. This latter problem is less severe than the second financial problem.

Among family difficulties, (1) conflicts over educational and vocational plans are frequent sources of problems. (2) Girls tend to remain somewhat overdependent on the family as a specific problem; (3) boys more often find it difficult to establish their independence of the family. (4) Conflicts with siblings (brothers and sisters) occurred in somewhat less than 10 per cent of these cases; (5) In about 15 per cent of the cases the adult members of the family and the child members of the family show personality clashes generally caused by differences in age and habits of living.

In the relatively small proportion of physical or health problems, general poor health as seen in frequent absences is one specific problem. Another specific difficulty involves the educational or vocational limitations imposed by physical handicaps of a permanent or temporary nature. Girls also tend to worry more about their health than do boys.

It must be remembered that these specific problems, while they occur most frequently *within* the problem type, are found in a descending order of frequency, just as was true of the problem types within which they are classified.

In the second place, one must expect a particular student to have his own specific constellation or pattern of problems. He may have, for example,

the least frequent specific type of vocational problem, together with a very unusual health problem, and the most frequently occurring educational problem. The counselor cannot expect to find all students conforming to any general rank order of frequency of difficulties. It is, furthermore, characteristic of case work that students usually have more than one problem. On the average, in several studies it was found that each student had from 3 to 5 specific difficulties or problems, for which a small amount or a great amount of help was necessary. Therefore, do not expect to find one problem alone to which you may devote your attention in helping students.

These two facts—the expected order of frequency of problems among students in general and the unique pattern of problems for each student—will help you to know what to look for in each case.

There is a third general fact that may also serve as a guide. This has to do with the severity of the problem. It is best to think of only two levels of severity at first—major problems and minor problems. There is no rule of thumb for making this judgment, but in general a problem is a *major* problem if it has existed for a long time or if it can be solved only by drastic changes in the student or the student's family situation, or if it involves a clear-cut distinction between the student and his contemporaries. For example, a reading disability of long standing will be harder to correct than one that is just beginning. An insurmountable financial problem that prevents the student from going on to professional training is of major severity. A student whose poor social adjustment has caused him to be isolated by his fellow students is in more severe straits than one whose social adjustment is less noticeably different from his fellows.

In the fourth place, any person who spends a long period of time in dealing with human difficulties tends to become "case hardened." Where a beginning counselor will approach the student and his difficulties enthusiastically and hopefully, with great confidence that his newly-learned techniques will solve all the difficulties, the "old hand" will be less hopeful. It is desirable and right that new counselors should feel this way, but after some period of clinical experience they will become, understandably, less hopeful of curing all of the ills of all of their students. There are some conditions which cannot be cured and some problems which cannot be solved. This process of becoming a more experienced case worker is a necessary part of clinical experience. It keeps the counselor from building up false hopes, it helps him to apply his energies more efficiently to the

potentially more hopeful cases, and it saves him some of the heartaches at the general inhumanity of man to man. We mention this point partly because we have seen so many counselors discouraged in their earlier experience at their inability to succeed with every student.

Generally speaking, counselors find the least success with family or financial problems, largely because the factors producing the problems are beyond control. They have most success with educational and vocational problems, to the extent that the factors causing such problems can be controlled. Between these extremes lie the social or personal adjustment problems; if you can get at the real factors producing the difficulty, your chances of helping the student are fair.

A fifth fact related to the outcomes of counseling is that even though a counselor may make a good and correct and appropriate diagnosis of a student's difficulties, he cannot therefore necessarily expect to cure or solve all those difficulties. In the same way, a doctor sometimes makes a perfect diagnosis of an incurable illness. The student's problem may have become incurable because the diagnosis was not made early enough; this emphasizes the importance of early and preventive work in guidance. It may be incurable because of conditions over which the counselor, the family, and the student have no control, such as the high-ability student whose family finances absolutely prevent the further education that would give the student a fighting chance for maximum success in life.

On the other hand, guidance will certainly not be effective or helpful to students if the diagnoses and identifications of their problems are incorrect. Careful and separate attention to the act of identifying or diagnosing the student's difficulty is essential, regardless of the chances of helping him and regardless of the prognosis that is made.

The sixth fact in studying the mass of material collected for each student deals with the distinction between a symptom and a cause. To give a very extreme example, if a person has a fever of 103°, it might be possible to do away with the fever by packing him in ice but when the ice melts or when the patient is removed from ice, it is quite possible that the fever of 103° will return. It is evident, therefore, that the condition which brought about the fever of 103° remained untouched by the ice pack. The only thing that was done was to treat the symptom rather than to find the basic condition behind the symptom.

In the case of the student who is underachieving, his grades are truly

symptoms. You can treat the symptoms by scolding him, by giving him a failing grade, by sending him to the principal, or by exhorting him to do better work. If you do any of these things, the student may promise to be good and work harder, but the chances are that the grades will not improve. The problem is to determine the factors or conditions which produce the symptom of underachievement.

Consider for example the student who has made an inappropriate vocational choice. He wants to be an engineer. His mathematics grades have always been low and his science grades have also been low. He has very little occupational information about what engineers do, but he thinks they make a lot of money and spend a lot of time out-of-doors. At this point, we say that the student has the problem of an inappropriate vocational choice. Is this incorrect vocational choice the basic problem in the case or is it symptomatic of another kind of problem? Assume that he has made this choice because of family insistence upon it. Therefore, if a counselor spends all his time trying to persuade the student that he should not become an engineer, if he tells him he will fail when he undertakes engineering training, if in other words, the counselor fails to find out that the family is holding the student to this choice very rigidly, he will not be helping the student.

If, on the other hand, he finds out that the choice is symptomatic of family domination in regard to vocational planning, the counselor automatically turns to the family in an effort to correct the difficulty at the source. A glance at our previous listing of frequently occurring problem types and frequently occurring specific kinds of problems in the type will indicate other examples of the possible confusion between symptoms and causes.

In studying your cases you are always seeking for a basic and *fitting* explanation of the student's difficulties. It becomes necessary, therefore, to examine every problem you find in the student and to trace back its origins to other problem areas or to other situations. There is no need to be discouraged at this apparent complexity. It is again simply a guidepost to direct your thinking. The question is always this: Is the student's difficulty a symptom of other difficulties or a problem which may be attacked directly? If it is a symptom of other difficulties, what are those other difficulties and how can they be attacked?

You will never be able to say absolutely that a given set of conditions is beyond all doubt the source of the student's problem. You may say that the conditions *probably produced* or *were likely to produce* this problem, but

beyond such a statement you cannot go. In our example of incorrect vocational choice, this is expressed in the following manner: The student has made an incorrect vocational choice. *The chances are* that he has done so because the family insists on it; *the chances are* that the family insists on it because they do not realize the demands of the occupation or the strength and weakness of their child. Notice that the phrase "the chances are" is the counselor's way of stating his best estimate of the reasons for a given condition or problem.

It is extremely important to realize that so many factors operate to cause human behavior that you are always discussing *chances* of occurrence of some of these factors rather than any certainty of occurrence of any one factor.

There is one last fact of extreme importance in diagnosing or identifying student problems. It is simply this: The student may state a problem which turns out to be the least important aspect of his difficulties, or the student may not believe that he has a problem. In other words, in the counseling situation the two members of the interview, the student and the counselor, have two different viewpoints. From the material in front of him, the counselor may come to feel that the student has made an incorrect vocational choice. The student, however, may not believe that his choice is incorrect and may feel that the main problem for which he seeks help is one of financial assistance.

This fact of two different viewpoints in the counseling interview does not mean that the counselor fails to discuss or avoids a discussion of what the student feels to be the difficulty. In fact the counselor nearly alway starts his counseling by discussing the student's claimed problem. But the counselor does not take the student's statement of the problem as the complete diagnosis and does not confine his discussion to that problem alone. For example, many students are quite hesitant about discussing personal adjustment difficulties. They may come to the counselor to complain about a certain teacher or to ask about their program plans for the coming year or to talk about a difficulty with a certain subject. The counselor may find students have a personal adjustment problem which they either hesitate to discuss or of which they are unaware. Therefore, it is important not to focus all case work on what the student wants to discuss in the interview. It is important from the counselor's standpoint to decide whether the student's stated problem is the real problem.

These seem to be the most important general facts in diagnosis. With these clearly in mind, it is possible to discuss the identification or diagnosis of specific problems that occur quite frequently. It may be well to interview several students quite informally with these facts in mind and then to read this section again, before attempting more intensive case work.

Vocational Problems

The counselor has to make one of three decisions in regard to the probable vocational adjustment of the student: the student's present vocational choice is appropriate; it is inappropriate; the student has made no choice. Here, in outline form, are some of the contributing factors in the counselor's decision:

A choice is inappropriate if

1. It requires much more or much less general scholastic ability than the student possesses.
2. It requires special aptitudes which the student does not have in sufficient amounts.
3. It requires a different pattern of occupational interests and personality than the student may show.
4. It requires an amount of training which the student cannot possibly afford.

Three of these factors involve a knowledge of the student's strong and weak points; the fourth factor involves a knowledge of the family background and finances.

An inappropriate choice may be made because

1. The family insists that the student take up this line of work.
2. The student (or the family) has a misunderstanding about the duties and qualifications of the occupation he has chosen.
3. The student (or the family) is misinformed about the salaries, job opportunities, and security attached to the occupation.
4. The student (or the family) has a romantic or idealistic viewpoint about the occupation.
5. Well-meaning friends have suggested that the student would be a success in the occupation.

Notice that all these reasons grow out of a failure to understand the student's own strong and weak points in relation to job demands. The unspoken and incorrect assumption is that a student can be made into or

can make himself into any kind of worker, and therefore he need only choose a field where salaries are high, openings are frequent, and security is great. This is about as incorrect as assuming that all students could master higher mathematics or run a hundred yards in 9.4 seconds or learn to play a musical instrument.

A student may have made no vocational choice because

1. He isn't psychologically ready to make a choice, in terms of maturity or need.
2. He does not have enough information about himself and about jobs to be able to make a choice.
3. He can't make up his mind between two or more possible choices.

In cases of *no choice, inappropriate choice,* or *appropriate choice,* the student may show various degrees of certainty in his decision, all the way from complete indecision and uncertainty to complete certainty in regard to a specific choice.

How can the counselor judge the appropriateness of a claimed choice, or how can he help the student arrive at an appropriate choice? Psychologists have made a beginning in answering this question by developing what they call the "occupational ability profile." This development is a basic guidepost in your vocational guidance work, and we shall describe its logic here in outline form.

1. There are about thirty thousand or more separate occupational titles or labels in the world of work.
2. These titles can be grouped into broad *families* of occupations, wherein each family requires different amounts and kinds of various human characteristics for successful job competition.
3. *Some* of these different human characteristics can be measured by available test techniques as they are found among successful workers in the family of occupations.
4. Of these human characteristics which can be measured, some mature in the individual before he has had job experience. These are: general ability, special aptitudes, and interest types.
5. Therefore, the counselor can study these matured characteristics in the potential worker and compare the amount of them he has with the amounts possessed by successful workers in several families of occupations, in an effort to guide him toward an occupational choice in which his chances of successful competition will be greatest.

This is an oversimplified statement of the psychologist's idea; actually it is not as easy as it looks. But it is a guidepost that will give direction to vocational guidance and to the study of jobs. Notice one important point: when a counselor seeks occupational information in order to use this "occupational profile" idea, he seeks primarily information about human abilities, aptitudes, and interests demanded by the job, in addition to information about number of openings, beginning salaries, and other aspects of supply and demand by employers.

Examples will make the occupational profile idea clearer. Consider three broad families of jobs open to high-school students: office clerical jobs; semi-skilled mechanical jobs; retail sales jobs. Consider only a few human characteristics: general scholastic ability; clerical aptitude; manual dexterity; background in English; gregariousness or "social intelligence"; and occupational interest type. Consider five degrees of possession of these first five characteristics: very much, much, average, little, very little. It is probable that the following patterns of amounts or types of the six characteristics will be necessary for job success.

	Clerical Family	Semi-skilled Family	Retail Sales Family
General scholastic ability	much	little	little
Clerical aptitude	very much	very little	average or little
Manual dexterity	average or little	very much	little
Background in English	much	little	average
Social intelligence	much	little	much or very much
Occupational interest type	business detail	sub-professional	business contact

Another example from among the college-going group of students is given in regard to general scholastic ability, mathematics aptitude, social science background, economic conservatism, English background, and interest type. Instead of families of *occupations,* we now have families of *professional curriculums,* such as: all engineering curriculums; all social service curriculums, including teacher training; and all possible business curriculums, including law school.

	All Engineering Curriculums	All Social Service Curriculums	All Business Curriculums
General scholastic ability	very much	very much	very much
Math aptitude	very much	average	much
Social science background	average	very much	much
Economic conservatism	average	little	much
English background	average	much	much
Interest type	technological	social science	business detail or verbal

In these two illustrations, our average point may be taken as "the average of graduating high-school seniors in urban areas." With reference to the college-going group, we can see that potential candidates for any one of the three curricular families are about alike in terms of general scholastic ability, but are not alike in other regards. This fact stresses the importance of careful individual studies of higher-ability students. It is not enough to know that they are "college caliber." You must help them decide what college or what curriculum is most appropriate to lead them to the appropriate broad family of occupations for which college training is essential.

Notice also in the first example that a less than average amount of some traits is found among successful workers. This fact is important to keep in mind in understanding the meaning of low test scores among individual students.

In careful research studies on occupational profiles, average test scores and standard deviations of test scores, calculated from samples of successful workers, would be substituted for our words, "very much, much, average, little, very little." But for illustrative purposes, these words will serve the purpose. Furthermore, since job or college standards vary from one locality to another, it is probably best to illustrate the idea verbally rather than numerically, to stress the need for local research as a basis for assigning the numerical values.

The *Dictionary of Occupational Titles,* previously mentioned, and the more recent classifications of families of occupations worked out by the Occupational Analysis Section of the Division of Employment Security will be of great assistance in learning about families of occupations. These are available from the Superintendent of Documents, Government Printing Office, Washington, D. C. The *Minnesota Occupational Rating-Scale,* described in Chapter 4, is essentially a procedure for studying families of occupations in relation to the student's strong and weak points.

All we have described in regard to identifying vocational problems takes place *before* the counselor attempts to do anything about the problem. He first reviews his material about the student; then he talks things over with the student in the interview to get a clearer picture of the problem and the student's attitude toward it. He has not yet done anything to correct an inappropriate choice, confirm an appropriate choice, or help the no-choice student to reach a choice. But with these guides in mind, the counselor is

in a position to help the student choose the family, *or families,* of occupations in which he has the greatest chances of successful competition. Remember that a student may have the characteristics of more than one family of occupations.

The use of the concept has two strong advantages in vocational counseling. First, it is basically a much sounder and more functional approach to vocational problems than worrying about specific occupational labels selected by the student. Within the family of occupations that seems appropriate, several specific and alternative jobs can be found for the student to consider. In the second place, vocational guidance can begin in the earlier school years, since some of the broad human characteristics of ability, aptitude, or interest can be spotted by tests and other devices even in the junior high-school age range. As a corollary to this advantage, it is possible to relate the claimed occupational choices which the student makes at various stages to families of occupations. From the group guidance standpoint, the occupations class might study families of occupations and the counselor might help direct that study to the families which his individual diagnosis indicates are appropriate for each child.

One limiting fact must also be mentioned in relation to the occupational profile idea. It is based partly on the extent to which successful people in a group of occupations depart from the average amount of certain human characteristics, where "average" may refer to a cross section of the general working population. It is quite likely that the members of many routine, repetitive, relatively unskilled occupations do not depart to any great extent from the average of the general working population. It becomes impossible therefore to group such occupations into families, since the occupations demand no distinguishing or outstanding human characteristics. When students also show such a pattern of mediocrity or closeness to the general population average, it may not be possible to do any more in a guidance sense than help them get placed in a job that will make no excessive demands on them.

We can now restate the counselor's decision regarding appropriateness of choice. Is the student's claimed choice within the family of occupations for which his characteristic ability, aptitude, and interest pattern is indicative of successful competition? If so, the choice is appropriate. If not, it is inappropriate and the counselor must seek out the reasons that led to the inappropriate choice.

Identifying Educational Problems

In this problem area the counselor has one dominant question to answer. Is the student working up to his capacity? If not, what educational difficulties exist? In this section as in all sections, we shall discuss specific problems within the basic problem type. Where the specific problem turns out to be mainly a symptom of a different problem type, it will be necessary to track it down to its ultimate source in the process of diagnosis.

To decide if the student is working up to capacity, the counselor must know three sets of facts: the student's capacity as measured by good tests of general scholastic ability; his work or output as measured first by grades and where possible by standard achievement tests; and finally the established relation between ability and achievement for the school population of which he is one part or sample. This last fact is derived by the technique of the coefficient of correlation or by the technique of the graphic scatter-diagram which we have illustrated in earlier chapters. A separate scatter-diagram is necessary for ability versus grades and ability versus standard achievement tests.

In the process of deciding about a student, the counselor will look at the grade level in relation to the level of ability. He may say that the grades are about at the level the student is capable of getting. If this grade level is still below the school standard or the passing level, it certainly cannot be the student's fault. It simply means that the curriculum is not appropriate to the ability level of the student. The counselor must then decide whether the student can be shifted to a better curriculum or whether the rigidity of the curriculum forces the student to continued failure.

If, on the other hand, the student seems to be an overachiever in terms of teachers' grades, the counselor may look at the diagram for ability versus standard achievement tests and find a lower level of tested achievement that is truly more in line with ability. Conversely, a student who seems to be an underachiever in terms of teachers' grades may turn out to be doing about as well as can be expected in the light of his better scores on standard achievement tests.

Where the ability measure is definitely above average and where both grades and standard achievement tests agree in putting the student below average in achievement or accomplishment, the counselor then looks for specific educational reasons for the underachievement. He may find, for example, that the student is spending an excessive amount of time in outside

work for money. This clue takes him directly into the financial problem type and tends to determine and limit what he will do to help the student. He may find that the student lacks the basic study skills to learn and to retain what is taught. In other words, the student may be spending inappropriate amounts of time on study or the student may be unable to use textbooks well, or he may be unable to use library facilities to track down necessary information.

Since the teachers are primarily subject matter specialists, it should be relatively easy for them to identify incorrect approaches in the study of their subjects. Teachers should be well able to impart effective study skills and study techniques to the students.

In addition there are inexpensive manuals or aids for use in developing study skills. Counselors can use these as further guides in identifying the study weaknesses, as well as methods for correcting or treating the problem. One such guide is the pamphlet, *Studying Effectively,* by Wrenn and Larsen, available from the Stanford University Press, Stanford University, California, for $0.25. Another, *Practical Study Aids,* by Wrenn, is available from the same publishers. The first pamphlet is primarily for beginning college students, but high-school counselors can adapt much of the material to the needs of high-school students.

One phase of the educational problem involves the student's ability or inability to budget his time. There are 168 hours in every week, to be wisely spent in daily tasks. You may get students to keep a log book or a budget of their time for a couple of weeks to find out how wisely or wastefully time is being spent. Where there is insufficient time spent in school tasks, or much time unaccounted for, you may have the source of the educational problem and may take steps to help the student learn more efficient life styles.

In similar cases of discrepancies between ability correctly measured and achievement correctly measured, the teacher may look for the standard educational disabilities such as reading speed and comprehension, arithmetic skills, or weaknesses in English and language skills. And in the case of reading skills there are inexpensive manuals or aids to use in identifying and correcting reading problems. One of these is *How to Read Rapidly and Well,* by Wrenn and Cole, available from the Stanford University Press for $0.15 per copy. The pamphlet *Studying Effectively* also contains suggestions for improving reading.

All of these diagnostic judgments grow out of an inspection of the ability and achievement material in the case records. It is important also in this regard to look at both grades and standard achievement tests in an effort to determine continuing strong and weak points. A student who has consistently made poor grades in one subject matter area with high grades or good grades in another area may have a special handicap that will color all of his educational experience.

In those cases where the student's vocational choice is inappropriate, it frequently follows that his future educational plans will be inappropriate and thus the diagnosis of a vocational problem may also lead to the diagnosis of inappropriate educational choice as well, in a high percentage of cases.

There are two other specific educational problems that should be mentioned. Many times teachers feel that students "just won't work." This complaint is more frequently directed toward boys than it is toward girls; it is reflected in the fact that boys, on the average, are given poorer grades than girls, even when both sexes are the same in basic ability. The problem is essentially one of inappropriate or inadequate motivation, and it is extremely difficult to solve even though it is relatively easy to identify, after all other possible educational problems have been checked off the list.

Psychologists know relatively little about motivation among human beings, in the theoretical sense. But it is easy to see certain elements in the high-school situation that do not produce motivation. Going to school is compulsory, and on the average outside compulsion doesn't help motivation. Going to school involves some classroom activities of no great intrinsic interest to the child. This situation, combined with the difficulty of doing a good job of teaching, makes it difficult to hold the child's attention, which is an element in motivation. Going to school usually involves a lock-step progression, dictated by adults, from one task to another. This lack of freedom of choice also limits motivation. Going to school as an activity competes with a host of other activities in which the child may want to take part. These more interesting distractions and bypaths cut down on motivation to study.

Popularizing, liberalizing, or even streamlining the school experience would help to produce better motivation, as would any increase in teaching skills on the part of the individual teacher. The point to remember is that the school situation itself is often the source of the poor motivation, and the student should not be condemned too much when this occurs.

The other educational problem is the problem of planning programs for students, including extracurricular activities. Usually this is solved by requiring all students to take specified subjects at specified times, with emphasis on the traditional academic subjects, and with limited choice of a few non-academic electives. Admittedly state departments of education determine or enforce such general policies and standards. But it is quite likely that some educational difficulties could be prevented if data about the individual student could be used in program planning, in selecting appropriate educational experiences, or in creating new informal or formal experiences to meet the student's needs. Effective education will take place to the extent that better program planning for the individual student, regardless of his grade and age, takes place.

These two problems—lack of motivation and selection of classroom experiences—are linked together. The student takes what he's told to take, without any chance to make choices; the student is unmotivated. The source of these problems lies in the school program itself, and must be corrected at the source. But in studying students notice how often problems of poor motivation and unreasoned or inappropriate program choices occur.

Referring back to the scatter-diagram, the counselor can now make his required judgment regarding work up to capacity, and can identify a few specific educational problems in those cases where work is not up to capacity. Remember, though, that if grades are considered symptoms primarily, the symptom of underachievement may be traced in turn to health, financial, personal, or family problems. It is important to keep this in mind, and it is also important to remember, in the sections to follow, that a problem may exist *without* producing the symptom of grades out of line with ability.

Identifying Financial Problems

In discussing educational and vocational problems, we have relied heavily on test or quantitative material about the student in the diagnostic process. By way of contrast, the identification of financial and health problems is carried on almost exclusively without such numerical devices; we rely heavily on the interview and other sources of non-test information in these two areas. In this sense, the interview is primarily a judgment-making or fact-finding device; in the next chapter we shall discuss the interview as a curative device to help students in the solution of their problems.

In identifying family and personal types of adjustment problems, personality tests, interviews, anecdotal reports from others, and observations of behavior are used in combination to identify the specific problems.

Thus, the process of identifying problems ranges from great dependence on numerical data to great dependence on non-numerical data. Both kinds of data are indispensable.

There are three specific financial problems commonly observed among students. First, it is generally believed that outside work may lower a student's grade record. However, most of the good research studies indicate that students who do carry an outside work load that is not excessive will earn as good grades as students of similar ability who do not do outside work. The use of a time budget, as described above under study habits, will permit the counselor to judge the effect of outside work on the student's total adjustment. Do not jump to the conclusion that outside work for pay or for family assistance will automatically spoil the student's grade record. But even though outside work need not affect grades, it may affect, or produce problems in other aspects of the student's adjustment, such as social life, health, or personal adjustment.

To identify a second specific financial problem, permanent limitation on educational-vocational plans, the counselor needs to get evidence about the financial status of the parents, together with evidence of the student's own earning power to date. The student who hasn't a nickel to use toward expenses of further education but who is otherwise a good risk for such training, may face the disillusionment of wasted abilities on low-level jobs, if full financial aid cannot be provided in some way.

The third financial problem is a less severe case of the second: temporary financial limitation on educational-vocational plans. Some students can see their way through part of a post-high-school training program, either with family help or with their own earning power, but cannot complete the entire job without outside help.

The identification of such problems requires common sense and tactful questioning in the interview together with factual information about expenses of college courses, expenses of other training courses on the post-high-school level, and possibilities of part-time employment while in training.

It is quite likely that any teacher or counselor who can manage his own personal finances capably can be helpful to students in identifying and treating financial problems if only he will take the time to get correct and

complete information on expenses, scholarships, community financial aids, and part-time employment opportunities.

Physical or Health Problems

Without special medical training, teachers and counselors cannot, and should not, attempt diagnosis in this area of student behavior or student adjustment. However, they must be alert for signs and symptoms of health problems and must call the attention of the proper authorities to such deviations. Continuing or periodic absences from school, frequent colds, listlessness, rapid exhaustion, marked underweight or overweight conditions, hearing difficulties, visual difficulties (as seen in the nearness or farness of reading material when the student is reading by himself)—these are some of the many possible clues or signs to look for, and to report to the school nurse, or the school administration, or the parents.

Wherever possible, after a medical examination, the teacher or counselor should try to find out if the medical findings placed any limitation on the student's educational and vocational program. If the reduction of a class schedule is necessary, the teacher or counselor must help in working out this adjustment. If a physical handicap exists that limits or eliminates certain occupational opportunties, the teacher and counselor must know this in their educational and vocational planning with the student. It is not enough to turn the student over to another specialist for a medical examination; the counselor must subsequently find out the relation of the medical findings to other aspects of the student's adjustment.

Social or Personal Problems

Here, and also in the case of family problems, symptoms and causes of problems are most varied and most confused. Assigning correct labels to specific problems is additionally difficult because of the complex nature of personal adjustments and personality traits. Among the more clear-cut specific problems, however, are the following:

Extremely high, or "good" scores on tests of social adjustment, together with evidence of participation in a wide range of activities, both organized and unorganized, may indicate the *oversocialized* student. The difficulty here is to determine *how much* activity beyond the average becomes a problem, and *for what* future adjustments the oversocialization is dangerous. If the individual's grades are pulled down by oversocialization, the problem

is immediate and its harmful effect can be seen in the individual's present adjustment. Beyond that, however, what is the effect of oversocialization? Generally speaking, the danger is that in the future the individual's job adjustment may be affected unless he or she settles down.

The other end of this problem, *undersocialization,* is probably more serious. Extremely low or "bad" scores on tests of social adjustment, together with evidences of almost no participation in activities and shyness in and out of the classroom, complete a fairly clear-cut picture of undersocialization. In some cases this apparent problem may in reality be a symptom of, or a clue to, feelings of shame or inferiority about poor family background, personal appearance, physical handicaps, or inability to compete in academic and extracurricular situations. In other cases, undersocialization is no more than an observed retardation in the individual's social development, which can be corrected by gradually helping the student to learn skills in social situations. The most common danger is that an attempt will be made to socialize any and all undersocialized children by pushing them into "activities." Where the undersocialization grows out of feelings of shame or guilt, such activities only intensify the problem and do not solve it.

In this regard it is interesting to point out one general finding of several research studies on student participation in extracurricular and social activities: a minority of the pupils participate in the majority of possible activities (unless all pupils are *forced* into activities); this minority is made up of the students who are best adjusted to begin with, and who therefore profit least from such participation. In other words, well-adjusted students tend to seek out the activities; the activities do not produce well-adjusted students. Even in those schools so "activity-conscious" that all students are obliged to participate, it is likely that participation is helpful only for those whose undersocialization is a problem of retarded social development; for other types of undersocialization, participation is probably a painful and difficult experience.

"Attention-getting behavior" is a fairly appropriate label to use in describing the actions of students who are basically unsure of themselves or feel insecure in their adjustment. The attention-getting behavior is their attempt to compensate for their feelings of insecurity; it is often a socially undesirable or unacceptable type of behavior, such as aggressiveness or bullying, "cockiness," unusual modes of dress or speech or mannerisms, boastfulness, and "tall stories." Such students may come from homes where

considerable parental friction exists, or they may be unable to get recognition because of inability or lack of opportunity to compete successfully in more acceptable fashion, such as earning good grades or having appropriate social skills. Truancy and delinquency also may result from these same two basic causes.

Similarly these same causes can produce a withdrawing, daydreaming, reclusive type of student who is somewhat different from the undersocialized student in the sense that he may not be shy, but simply shows no interest in participation with fellow students.

Any evidence of *over-reacting* to daily situations must be observed by the counselor as another clue to emotional or personal problems. All of us normally worry a little about social mistakes, or about our health, or about criticisms of our behavior, or about the future. All of us are pleased with small successes, compliments, and other satisfying experiences. Some students, however, become excessively depressed, irritable, anxious, worried, moody, excited, or elated over daily happenings. They *over-react* to situations, without apparent cause. These symptoms must be observed and generally classified as *emotional* problems.

Personality test scores offer clues or signs of all these problems, although they do not tell the cause of the problem. Rating scales or anecdotal records similarly may highlight such personality factors. In the interview the counselor must be alert to observe the occurrence of these characteristics and must be able to question the student tactfully and often indirectly in an effort to get the student to discuss such problems.

Human personality is complex, and any discussion of it is likely to be diffused and cloudy. Our *standards* of good and bad adjustment are not well defined. The difficulty of separating symptoms and causes is great. Skill in diagnosis involves greater knowledge of the psychology of adolescence and the psychology of personality than most of us possess. The possibility of stumbling on a severe and deep-seated maladjustment is ever-present. Yet in spite of all these facts, it is necessary for the counselor to attempt to identify such problems.

In Chapter 4 we suggested that personality testing be the last addition to the guidance or personnel program, because of the difficulties involved. We may reinforce that suggestion at this point by urging you to proceed cautiously in even discussing these personality problems too freely with all your colleagues. Whatever the student may tell you in confidence cannot be

broadcast. Whatever impressions or judgments you make about the nature and causes of personality problems should not be too openly discussed lest in the very act of discussion the student becomes "typed" as a "problem child." What others don't know or can't see won't hurt them. Whenever possible, students whom you believe to have severe personal or emotional problems should be referred to a better-trained psychological or medical specialist in the community.

Identifying Family Problems

The sheer process of growing up and learning to adjust to the greater independence of late adolescence is a situation which sometimes produces family-student conflicts. Parents can't understand why children don't obey as they used to; children can't understand why parents continue to treat them as children. The parent's inevitable tasks of enforcing social regulations, doling out spending money, checking on choice of companions, watching over moral behavior, exhorting the child to study hard can easily seem to the child like nagging and constant criticism. So it is to be expected that some students will be upset or disgruntled by home situations. If you add to this "normal" problem of growing up the further possibilities of rivalry with brothers and sisters, emotional friction between parents, or the depressing effect of hard times on the father and other members of the family, it is not surprising that family conflicts occur to make the child feel uncertain and insecure in an adult world he understands only vaguely.

As in the case of social or personal adjustment problems, personality tests of home adjustment, interviews, home visits or contacts with parents, reports and anecdotes from others are all methods of identifying such problems. A few of the standard conflict-producing situations are described below.

Some families, in a well-intentioned attempt to spare the child adult insecurity, dominate the child's occupational choice and insist that he or she prepare for or enter a certain field. If you will refer back to the section on vocational problems, and apply that information to the family rather than the student, you can see the problem more clearly. In such cases it is the family, rather than the student, who must be reached in an effort to bring about a more appropriate vocational choice.

Some families, in attempting to motivate a child, will constantly compare the child to a more gifted and more effective brother or sister. Contrary to

expectations, feelings of inferiority on the child's part are too often the outcome obtained. A special case of this difficulty is that of the student who feels rightly or wrongly that he is not as well liked or well treated by his parents as are other brothers and sisters.

The somewhat greater freedom of action which society permits boys is often accompanied by greater attempts on the part of the parents to see that the freedom is not misused. Because of this situation boys may often complain of parents' nagging them about the company they keep, the hours they keep, the way they spend money, and the little studying they do. The parents, whether they realize it or not, are in the process of helping the child become independent, and nagging or scolding is a poor way to help the child over this transition period.

However, the situation is different for girls since they show more of a tendency to remain docile and overdependent on the parents. Since this state of overdependence tends to keep the child out of trouble, parents are likely to prolong the overdependence for that reason, and are not likely to thrust enough responsibility on the girls.

In families where the parents themselves are not happily or adequately adjusted to each other, the child also may feel insecure, unloved, ashamed, or guilty, and may therefore show the various personality traits described in the preceding section. Sometimes, divorce or separation is a more clean-cut solution to this problem, whereas continued friction and bitterness between parents intensifies the student's maladjustment.

Certain children react to family conflicts by open rebellion, with its attendant vicious circle of punishment, bitterness, more open rebellion, and further punishment. The rebellion may flare up over finances, educational or vocational plans, religious observance, strict and restricted social life, standards of conduct, or personality clashes of differing temperaments. While such open family conflicts occur in a minority of cases, they are not rare, and the counselor must be on the lookout for them.

Running through all parent-child relations, the wise counselor can see inevitable differences in the two generations. It is quite likely that the earliest parents in the dawn of written history "wondered what this younger generation was coming to." In that same dawn of history, that younger generation probably couldn't understand "why their parents were so old-fashioned." It is only when these inevitable youth versus adult differences become extreme that a referee is needed, and counselors sometimes become the

referees, setting up new ground rules or interpreting each generation to the other.

In this chapter the process of identifying or diagnosing student problems may seem to range from a rather exact skill in inferences based on discrepancies in numerical data to a rather vague search for possible explanations of problems. Discrepancies between test scores and other numerical measures are sources for judgments about the nature and presence of educational or vocational problems. At the other extreme, judgments about the nature and presence of personal or family problems are based more often on the descriptive, non-numerical information collected in studying the student.

We point out again that both types of judgment must be made even though more caution must be used in the latter type of judgment. With this in mind, it may be wise to read again the last part of the 3rd chapter and the 4th chapter, where accuracy, meaning, frames of reference, and practicality of various judgment-making devices were discussed and illustrated in describing the various techniques of collecting information.

Selected Bibliography

1. Dvorak, B. J. *Differential Occupational Ability Patterns.* Bulletins of the Employment Stabilization Research Institute, Vol. III, No. 8. University of Minnesota Press, 1935. 46 pp. Price: $1.00. (t).

   Highly technical, research treatment of the concept described in Chapter 6. Much later research has been patterned on this pioneer study.

2. Hildreth, G. and Wright, J. L. *Helping Children to Read.* Bureau of Publications, Teachers' College, New York, 1940. 90 pp. Price: 50 cents.

   Suggests classroom procedures for developmental and corrective reading programs at the junior high-school level.

3. Marzolf, S. S. *Studying the Individual.* Burgess Publishing Company, Minneapolis, 1940. 181 pp. Price: $2.50. (t)

   An attempt to build up principles of case work by brief discussions of short case histories; extensive bibliography and topical organization of discussion. Will not be easy reading unless the reader has good background in case work.

4. Menninger, K. A. *The Human Mind.* Garden City Publishing Company, New York, 1930. 447 pp. Price: $1.00. (*)

   Vivid, graphic presentation of real life adjustment problems. The sections on psychological aspects of behavior are not good in an academic sense, but in his own field of psychiatry the author does an excellent job of describing the maladjustments of human beings in an understandable manner. Good background reading.

5. Russell, D. H., Karp, E. E., and Kelly, E. I. *Reading Aids Through the Grades.* Bureau of Publications, Teachers' College, New York, 1938. 90 pp. Price: $0.75.

   Suggests ways of making the teaching of reading a flexible process. Usable in the developmental or remedial program.

6. Strang, Ruth. *Behavior and Background of Students in College and Secondary School.* Harper and Brothers, New York, 1937. 515 pp. Price: $4.00. (t)

   An exhaustive survey and review of the literature on adolescent and school problems. Topics of intelligence, achievement, personality, and socioeconomic problems are discussed specifically, with separate discussions of special problems and the nature of adjustment. Good source book material.

7. Williamson, E. G. *How to Counsel Students.* McGraw-Hill Book Company, New York, 1939. 562 pp. Price: $3.75. (t) (*)

   The most complete treatment of the causes, frequency, symptoms, cures, and preventions of student problems. Deals primarily with college students but is adaptable to junior and senior high-school classes. Demands technical background and clinical experience for greatest understanding.

8. Williamson, E. G. and Darley, J. G. *Student Personnel Work.* McGraw-Hill Book Company, New York, 1937. 313 pp. Price: $2.50. (t)

   This relatively early statement of a strict clinical point of view caused much comment when published. The authors have elaborated their early points in later literature and this book is interesting now as a general introduction to clinical procedures in student personnel work.

CHAPTER 7. *Counseling: How to Help Students*

Now that we have seen the methods by which information can be collected and interpreted, it is time to discuss the effective use of the material in helping students. Psychologists are only beginning to understand what to do in treating difficult student problems. Furthermore, they are only beginning to find out the differences between good and bad interviewers or counselors. The reason for this is quite simple: it is almost impossible to observe an interview in progress under conditions as well controlled as an experiment in chemistry of a classroom examination schedule or any other experimental situation.

The Counseling Interview

Since the interview is the heart of the counseling process, the inability to study it as a research problem has delayed an understanding of the characteristics of good and bad interviewers. No matter how much material we collect about students, the sheer collection of it will be of little value unless the material is discussed in a series of interviews with the student and other interested individuals. No matter how good the material is, this goodness will be relatively unimportant unless the material is wisely handled in the interview. The interview is truly the primary process by which actual counseling and treatment in regard to student problems are started and carried on.

Bingham and Moore, (see bibliography for this chapter) who have written extensively on the interview, say that it has three primary purposes: getting information, giving information, and changing attitudes. These purposes are supposed to represent what the interviewer hopes to achieve in his interview situation. In counseling or guidance the interview usually has all three of these purposes, and it is sometimes difficult to keep the purposes clearly separated in one's mind during the interview.

We have already discussed the interview as a device for securing information in the chapter on the techniques of making judgments. As explained there, the interview can be used to find out what the student's financial background is in relation to further education, or to find out what relationships exist between the student and various members of his family, or to get information about the student's apparent motivation, maturity, or personality. In such situations the facts which the interview yields should be added to the facts already collected by means of tests, questionnaires, reports from other people, grade records, and other judgment-making devices.

In that same interview, however, the counselor will probably have to give information to the student. The student must find out about his relative strong and weak points as indicated in the data collected. In addition, he must learn about training opportunities, job requirements, and types of post-high-school or parallel high-school training. It may be necessary to reconcile his incorrect beliefs about himself with the counselor's more accurate knowledge of him.

At the same time, the counselor may have to help the student revise his attitudes or beliefs in regard to his personal adjustment problems. It may be necessary, for example, to change his attitude toward his teacher and his subjects by showing him the possible importance of the work he is now taking as a means of fulfilling his later plans. If the student is upset by fancied mistreatment from one teacher, it may be necessary to modify or adjust his feeling toward that teacher. If he believes that his family is nagging him or putting obstacles in the way of his development, it may be necessary to clarify his relations to his family so he will see they are not necessarily persecuting him as an individual.

It should be obvious also that the counselor may have to interview the adults who control the student's life, in order to see their viewpoint or help change their attitudes about him.

Even though there is no standard rule for interviewing, there are certain principles which may be helpful to discuss:

1. Recent educational literature has placed a great deal of emphasis on the "mental hygiene point of view." This point of view is seen in the following characteristics of the attitude of the interviewer: the interviewer is friendly; he is tolerant of what the student has to say; he refrains from making moral or ethical judgments to the student; he suspends his final judgment until all of the facts are available; and he accepts the student as a conversational equal during the interview. This is somewhat different from the usual relations that exist between an adult teacher and an immature student. In most situations, the student feels that the adult teacher is passing judgment on the quality of his work, on his ability, or on his motivation. Similarly, the student in such relations has little chance to tell his story to an adult teacher or to get things off his chest. And finally, the student usually feels that he will be told that he has done the wrong thing or that he has been a "bad child" as determined by the adult teacher's moral or ethical judgment.

All other things being equal, the most effective interviewer is the one whose interviews are conducted in a manner which characterizes the mental hygiene point of view described above.

2. However, this point of view is primarily preparation for interviewing. It does not necessarily follow that any person who has these attitudes will be a successful counselor. Effective counseling or guidance rests on two foundation stones, one of which is competence in the statistical and measurement principles already outlined. The other foundation stone is skillful interviewing.

A person who is thoroughly well-grounded in statistics, tests, and measurements may still be a bad counselor in the sense that he cannot help the student. On the other hand, a person who knows nothing about statistics and nothing about tests and measurements, may still be a counselor in the sense that students find it easy to talk to him and have enough respect for him to follow out his suggestions, regardless of their merit. This means primarily that not all teachers must be expected to become good counselors in the same way that all teachers will not be expected to become statistical or test experts.

Obviously there are individual differences in the amount of these two types of skills a teacher will have. These individual differences in the pos-

session of the two skills mean that teachers will have varying amounts of effectiveness for the guidance program.

For example, some teachers will operate best when they interview students regarding their own subject matter. They know their own field of knowledge; they may know the tricks of studying in the field; and they may be able, by teaching and by student discussions, to vitalize their field of knowledge for their students. To the extent that they can do all of these things, they are valuable in the guidance program as interviewers for subject matter problems.

Other teachers may find their specialty in giving out vocational information. They may be totally inadequate in discussing emotional or social problems with students, but they may have enough knowledge of vocational demands and enough interviewing skills to help students in the choice of a broad vocational field, and in job-hunting procedures. To this extent, therefore, they also contribute to the guidance program.

Some of the advisers of extracurricular activities may be extremely skillful in handling social adjustment problems of students as these problems can be seen and treated in the group activity situation. They may be effective in bringing out the shy student or in indirect suggestions to the unpopular student or in indirect development of the student who lacks social skills.

A few teachers may develop an adequately high level of clinical skills for use in a wide range of student adjustment problems, when they become more thoroughly acquainted with the technical aspects of guidance and receive enough practice in interviewing. These are the people who will carry the heaviest part of the counseling or guidance work from the clinical standpoint.

3. It naturally follows that the most effective guidance programs are found in schools where one or more people can be brought to a high technical level and an efficient interviewing level. Guidance programs are necessarily limited by the people who do the guidance. One of the most difficult tasks of the school administrator, therefore, is to select and develop at least one good personnel worker in his institution.

4. Most people feel that they know how to interview. They believe it is merely a conversational situation involving two people. But actually it is supposed to have some helpful purpose or outcome for the student who is interviewed. When a new counselor starts interviewing with any extensive amount of material in front of him, he soon finds himself confused by the

very mass of material, and *counseling* interviews seem complicated. He experiences the same nervous symptoms and uncertainty which characterized his first practice teaching or teaching experience. He doesn't know where to begin; he may be frightened into reading off a series of test scores which are meaningless to him and to the student; he may find that the student is dominating the interview in spite of his best efforts to the contrary.

At this point it seems wise, therefore, to discuss several ways of thinking of counseling interviews.

1. The interview may be considered as an unrehearsed play in which two actors appear. If the actors miss their cues or forget their lines, the play lags and becomes a monotonous or pointless experience. Since the counselor or the interviewer is usually the older actor in the situation, it is up to him to "carry" the play. He must start out in the beginning by laying the foundation for the rest of the interview. He must organize the conversation so that it leads naturally to one or two climax points which will remain in the student's memory. At the end of the interview, the counselor must summarize the action and future plans so that the structure of the play can be clearly seen by both actors. By his alertness, his enthusiasm, and his skill in choosing the appropriate words, he must "pace" the student so that the student will also find the interview a pleasant and stimulating experience. These general statements apply even if the student has received unpleasant information in the interview.

2. In another sense, the counselor may consider the interview as a special learning situation for the student. How should the material be presented so that learning takes place? Examples come very quickly to mind. The counselor may lecture to the student in the interview, just as a college teacher lectures in the classroom. The chances are that this method will be relatively ineffective for the majority of students. The student may be pushed into a situation in the interview something like a recitation situation. He will recite his interests and hopes and his family background. This procedure is probably equally ineffective because the student will be reciting much that he has already indicated in the data collected before the interview; therefore, he will be unable to recite anything that is accurate about the test information the counselor has accumulated.

The learning outcome may be accomplished best by a discussion in the interview planned so that the student learns what his strong and weak points are and how his future plans can be formulated. Of the three ordinary

classroom situations described above, interviews that involve discussions probably are most worth while.

If the counselor explains the assembled test material and non-test data to the student, and then follows this by a discussion of the material, he may produce even better learning for the student.

3. In still another sense, the interview sometimes becomes a cathartic experience for a student suffering from tremendous emotional pressure. In such a case, when the student begins to pour out his long and troubled story, simply for the satisfaction of getting it off his chest, the counselor must prepare to sit back and listen. Students who are emotionally upset are not ready to learn or to be helped beyond the point of having someone to whom they may talk. The counselor must be alert to notice the student's frame of mind so that the counselor will not attempt to handle some other less deep-seated problem when the student wants to pour out his own immediate problems.

4. In many respects, the interview seems somewhat similar to a sales situation, since the counselor attempts to sell the student certain ideas about himself, certain plans of action, or certain desirable changes in attitudes. Persuasion and logic will facilitate and hasten the sale of such ideas by a counselor.

General Methods of Treatment

Let us now turn to a more general discussion of counseling or treatment methods in clinical work with students. Williamson, in his book *How to Counsel Students* (see bibliography at end of chapter) has presented the most comprehensive discussion of individual clinical work in guidance. In his chapter on counseling of students, he lists five methods which are basic in bringing about student adjustment. They are as follows: (1) forcing the student to conform to the demands of the environment; (2) changing the environment in which the student will operate; (3) selecting the most appropriate elements in the environment; (4) helping the student to learn basic skills for satisfactory adjustment, and (5) changing attitudes that interfere with satisfactory adjustment.

Consider specific examples of these five methods in relation to a vocational problem of inappropriate choice of level of job; the inappropriate choice is due to parental pressure. A student is choosing engineering when the most appropriate choice would be a trade school. The counselor has

already determined that the parents are responsible for the choice of engineering. Here is what may be done in such a case:

1. *Force conformity.* The principal of the high school may refuse to recommend the student to an engineering college. The college may refuse to admit the student because of low scholastic record. The high-school teachers may assign failing grades in the basic mathematics or science courses necessary for further success in engineering. In each of these situations, no real counseling has been done; nature simply has taken its course, and the student is the one who bears the brunt of failure and suffering.

2. *Change the environment.* It might be possible to go directly to the parents and have a frank discussion with them about the reasons and facts that indicate engineering to be an unwise choice. It might also be possible to get the student to take a stand himself against the parents after the interviewer has assayed his strong and weak points and persuaded him to accept a lower level of training for the skilled trades occupation.

3. *Select an appropriate environment.* The counselor and student may agree that the choice of engineering is unwise and may also agree that the parents cannot be moved from this choice. They might, therefore, select tryout courses in both engineering math and high-school shop work in which the student could demonstrate to the satisfaction of the parents high grades in shop courses and poor grades in the purely engineering subjects.

4. *Learn needed skills.* There are no necessary skills which the student can learn in the solution of the problem we have cited. It is not a problem of essential study skills or reading skills, the learning of which will lead to success in the chosen occupation.

5. *Change attitudes.* By persuasion, by explanation, by illustration, an interviewer may change the attitudes of the parents regarding their child or regarding the profession of engineering. If the student is resentful or embittered toward the parents because of their domination of his choice, the counselor may also try to change the student's attitude toward the parents, or may at least get the student to trust the counselor and to return to him for assistance and reassurance if failure follows from the family's plans.

This illustration of specific "remedies" fits Williamson's framework of general methods of bringing about student adjustment.

Williamson has one other listing of five categories in his text; he outlines the five procedures that a counselor could use in a series of interviews with a student. They are as follows: (1) establish rapport, that is, get the

student's confidence; (2) cultivate self-understanding on the part of the student; (3) plan a program of action for the student to carry out; (4) see that the plan of action is carried out, and (5) refer to other specialists or competent individuals.

Of these five, what specific procedures may we list for the student whose family insists that he be an engineer? Establishing rapport is a step common to any type of counseling, and it can be done by using the twenty-one suggestions for interviewing described later in this chapter.

Cultivating self-understanding can be accomplished by the following methods: (1) explaining to the student the irrational bases of many vocational choices with special reference to parental influence on choice; (2) explaining the generally correct methods of making a choice in terms of a knowledge of assets, liabilities, interest types, and occupational profiles; (3) making a specific list of a wise series of alternative choices for this student in the light of the test material about him; (4) persuading him to take up the matter thoroughly with his family in the light of his improved self-understanding.

In planning a program of action, (1) the counselor may reinforce his procedures in the second step above by having the student get college catalogs for engineering courses and for trade-school courses to make a comprehensive study of requirements; (2) the interviewer and student may plan together to try out certain courses in pre-engineering subjects and trade-school subjects; (3) they may also decide that one of them must talk to the parents. Although the counselor may have the satisfaction of bringing about the student's self-understanding he may still have to deal with the parents if the student is unable to cope with them; (4) furthermore, the possibility of referring the student and his parents to successful men in the field should not be overlooked.

In carrying out these plans of action, the counselor must (1) arrange for follow-up interviews to see that the student has done his part. (2) It may even be necessary to write letters of referral or set the stage for interviews with other people. Referrals may be made as was suggested either to men who are successful in the field, to industries or plants in operation, or to sources of information in published form. (3) The counselor must make a clear division of responsibility for his share and for the student's share in carrying out a total program.

It is fairly obvious that in treating student problems, counselors do not

have as many guaranteed specific methods as the doctors have for the localization of infection, for removal of pain, or for surgery and medication. It is true in medicine that a good diagnosis does not automatically lead to a cure; this is even more true in clinical work with students, partially because almost every other adult who is in contact with the student is sure he knows what is best for the student. Adults have always been willing, in fact almost too willing, to tell young people what to do. In the face of so much amateur competition, a trained or semi-trained clinical worker cannot always make his voice heard in the clamor that surrounds the student.

Guideposts for Counseling

There are, however, eight guideposts which might point up some of this discussion of what to do for students and how to help them. These are listed here as further aids in the development of counseling skills.

1. Since he cannot possibly work out the best solutions for all students at all times, a counselor must be willing to *refer students to other adults for help*. But in making referrals a counselor must ask himself three questions. Am I referring this student to a more competent specialist within my own field or outside of my own field? Am I referring this student to people who are my equal from the technical standpoint but who are working in other fields such as the fields of group activities, placement, or study skills in particular subjects? Am I referring the student to a person less competent than myself, who may undo some of the good I have done or who may give misinformation that is dangerous to the student? While a counselor cannot escape the necessity of referring certain young people for help, he must be aware of the values of these other specialists or adults to make sure the referral will accomplish what he wants it to.

2. This guidepost concerns the extent to which a counselor can use logic or *reasoning with students*. Since so much success in the interview rests on persuasion and discussion, it is important that the interviewer be aware of the logic or reasoning elements in clinical work. In this regard, one must answer the following questions:

Do I tend to descend to the level of argument and exhortation in counseling? If so, I am probably doing the student little good. Am I careful enough to explain facts to the student about himself or about his environment which he does not know or on which he has misinformation? Am I systematically giving a dispassionate description of the student's strong

and weak points so that he may know himself better? Do I make more effective use of logic and reasoning with high ability students than low ability students? It is quite probable that this is true.

It is a point of general importance in counseling to gear methods to the level or type which the student can understand. Don't try to be humorous with a student who lacks a sense of humor; don't try to be hard-boiled with a student who is afraid of his own shadow; don't try to be coldly logical with a student who can't reason, or whose emotions are temporarily blocked. Am I, the counselor, stating alternatives clearly enough, in a logical or reasonable fashion so the student can see what he is up against in making his decision?

3. The counselor must consider the *depth of the treatment.* It is stated this way: Am I correcting the student's problem at the source or am I trying mainly to eliminate symptoms? For example, the family, the teachers, or the student's contemporaries must be reached when the student's problem either arises in these people or is irritated by these people. A counselor must be willing to set the stage in certain situations by getting a group of outsiders who can help a particular problem child. These outsiders are not the specialists referred to in our first guideposts. They are simply other people who come within the range of the problem.

However, in setting the stage, a counselor must take care lest the student catch him moving the scenery around. If the student has reason to believe the counselor is betraying confidences or prejudicing people against him, the counselor's effectiveness is destroyed at once. But it is not enough to tell the undersocialized student to "get into more activities" or "make more friends." Student leaders in activities may have to be enlisted by the counselor to induct the shy student; other students may have to be urged to take the lead in making friendly overtures to the shy student. Some employers may have to be urged to "bear down" on a part-time work student whose work habits are poor. Exhorting underachievers or threatening them merely hits at the symptoms (grades), not the causes. Most of us tend to be too superficial in working with students; hence this emphasis on the depth of treatment.

4. Here we deal with the *principles of effective learning.* A counselor may well ask himself the following questions in considering this guidepost: Am I permitting the student to participate actively in the solution of his problem on the assumption that such active participation leads to greater

self-understanding? Am I choosing learning situations of graded difficulty for students so that I do not ask them to learn social skills or other types of skills completely beyond their grasp? Am I making appropriate use of rewards and punishments in the sense of commendations or criticisms as motivational devices? And finally, am I clever and ingenious in choosing tryout situations for my students or in developing new tryout situations for their use?

5. Another guidepost deals generally with considerations of continued rapport, or the *counselor's relation to the student.* Am I *gradually* pushing the student onto his own responsibility for making decisions? Am I avoiding any appearance of sitting in judgment on him in the adult-child relation? Do I have enough technical competence and interviewing skills to command his respect? Do I accept my share of the responsibility in helping him carry out his plans by writing letters, introducing him to people, making contacts for him, and by interviewing him periodically?

6. Since counselors cannot control all elements of the environment, the sixth guidepost considers whether *the wisest possible use of the environment* is being made. Am I taking as much time as I can in handling this student? Do I realize that time solves some problems and is nearly always on the counselor's side, just as it is on the doctor's side? Do I permit failure when it is the only effective solution and am I then ready to cushion the shock of such failure by continuing my relations with the student? Am I setting the stage, when necessary, by getting certain things to happen for the student or to the student in the environment? Am I doing this stage setting without violating his confidence?

7. This is a reminder that there must be a parallel *development of technical skills.* Teachers are not expected to blossom forth as counselors with statistics at their fingertips and tests and measurements at their command. But a counselor must avoid using tests that he does not understand. As noted previously, he can increase his knowledge by developing a minimum amount of statistical confidence quickly; participating in some research studies, and practicing identifying problems by drawing inferences from available data. It follows, therefore, that a counselor must be willing to devote time to continuing self-education in this field.

8. The last guidepost relates to the earlier discussion of diagnosis. We know that there are many so-called "normal maladjustments" or *normal problems in the sheer process of growing up.* The problem of growing into

independence of the family, the problem of seeking economic security, the general inarticulate behavior of many junior high-school and high-school students—these are essentially normal manifestations of the growing-up process. In treatment and counseling, therefore, one must take care to distinguish between a true state of adolescent affairs and a more serious deviation, beyond the normal adolescent problems. It is necessary to avoid making "problem children" in the counseling program, since counseling should be a systematic part of the educational process. Therefore *do not* start counseling interviews by calling in the underachievers and the discipline cases or delinquent students. If such students appear at the start of the guidance program, other students will become suspicious and unco-operative.

With these eight guideposts firmly in mind, it is likely that a counselor will develop skills in helping students within the limitations of his competence and the resources at his command.

Twenty-one Suggestions for Interviewers

To these general descriptions we can add additional specific suggestions for effective counseling interviews.

1. Put the student at ease. This should be accomplished in the first part of an interview by greeting him cheerfully by name and starting to talk about seemingly unimportant facts or interesting happenings before turning to a specific discussion of the student. The interview should be conducted privately. A student cannot be expected to talk if several other people can overhear what he says. Neither can a student be expected to talk if he feels that the counselor is in a hurry to get him out of the office or is in a hurry to do something else. The general usage of polite conversation and social intercourse is necessary.

2. Avoid asking questions which the student can answer simply by saying yes or no. This will help the student respond more completely to the questions, thereby giving the interviewer a better picture of the student in action as he talks. Rather than saying "do you want to be a doctor?" say "how did you happen to choose medical work?"

3. Do not override or overtalk the student if he is in the middle of a sentence, or if he is fumbling for the word he wants to use. The most frequent error untrained counselors make is that they put words in the student's mouth or talk faster than the student or in some other way take the conversation out of the student's hands.

4. Do not fire questions at the student like a machine gun. The interview is not a cross-examination and should not be handled as such. Furthermore, the emphasis used in stating a question is extremely important. Consider the question, "What do you want?" If the word *you* is stressed, it sounds as if the counselor were mad at being interrupted in other tasks. But if no word in the question is stressed, it becomes a much more friendly approach.

5. If the student asks a factual question, give him a factual answer. If this is not possible, then tell the student so. No one can know *all* the answers, and students are much more likely to have more confidence in a counselor who does not hesitate to admit his ignorance as well as his knowledge.

6. Keep the vocabularly of the interview in the range in which the student can understand it. It would be better to use slang than many-syllabled words, but neither extreme is necessary if the interviewer carefully chooses words that are within the student's comprehension range. For example, in getting the student to see his own strong and weak points, a counselor may use comparisons from the fields of athletic competition and in this way get his point across more easily. He can compare a student's strength in mathematics with his good speed in a 100-yard dash and his weakness in English with his poor speed in the half-mile. Such a student would be unlikely to compete in the half-mile if he had greater chances of success in the 100-yard dash, and if the example is presented to him this way, he can understand more easily the inadvisability of competing in the fields where a great deal of English is a prerequisite for success.

7. Do not attempt to get the student to "tell all" in one short interview period. This generalization is particularly true when dealing with emotional or personal adjustment problems. Some books on clinical work urge the interviewer to let the student make a complete "confession," or get everything off his chest, at one time. It is fairly well established, however, that the student who has talked that much about emotional or personal problems has rather clear feelings of guilt afterwards and may be ashamed to return again for further assistance. Furthermore, a counselor who lets his sympathies run away from him in such a situation and keeps prompting the student to tell everything in his innermost thoughts is unlikely to be skillful enough to help the student face and solve the emotional problems. Such a counselor would be in much the same position as an amateur "doctor" who

opened up an incision or a wound and left the patient as a bleeding mass of flesh, not having the skill to repair the damage.

8. Do not monopolize the entire conversation. The interviewer usually talks somewhat more than half of the time in the first counseling interview, since so much of that interview involves giving the student information about himself. However, a counselor who talks as much as 90 per cent of the time probably talks the student into a coma and makes it impossible for him to receive much from that interview. When the student reports back on a plan of action or for more discussion or for a change in his plans, in later interviews, it is quite likely that he should do half or more than half of the talking. While there are no hard or fast rules or norms regarding "talking time" in the interview, experience has indicated that the foregoing generalizations are fairly sound.

9. Keep control of the interview. Long experience has demonstrated that it is unnecessary to plan each step of the interview ahead of time. If this is done, the student is quite likely to upset the plans by going off on a topic of his own interest. On the other hand, too frequently beginning counselors are "talked out of" their own best judgment by a student who gets them rattled or off the subject. Keeping control of the interview, therefore, means letting the student roam a little bit in his conversation but eventually pulling him back by a transition sentence or a direct statement relative to the topics under discussion.

10. Wherever possible, use impersonal references in discussion with the student to avoid antagonizing him or having him resist suggestions. For example, if the student describes a difficult situation at home, and a counselor sees evidence of a family adjustment problem he should not say *"I think* you have a family conflict." Say rather, "Many guidance workers interpret this type of material as meaning that you have a family conflict." Rather than saying, *"I do not think* you have very many chances of success in such-and-such a field," say "the evidence is somewhat against your chances of successful competition in such-and-such a field."

11. Don't avoid giving "bad news" to the student if the bad news is really accurate. For example, it is a mistaken kindness to let a student believe he can reach a certain goal when the weight of the evidence is all against him. This does not mean that a counselor must tell the student that he is "dumb" or he cannot carry out his plans or his attitude is poor. But an interviewer is entitled to discuss—in fact, he should feel obligated to discuss

—the student's limitations with him or with his parents, so he will not make plans that will lead to almost inevitable failure. The interview has many of the characteristics of polite conversation, but it departs from the ground rules of polite conversation in that the counselor is duty bound to discuss controversial subjects and limitations where the student's adjustment is at stake.

12. Be concerned not only with what the student says in the interview but also with what he may *not* say, what he may be thinking, or what he may be covering up by his statements. Quite often there is an emotional undertone to the student's statements which the interviewer will miss unless he is alert to the fact that inhibition or reticence cause many individuals to say things they do not mean to say. In this same connection, remember that one need not necessarily take the student's statement at face value. If the student complains bitterly of a teacher or of a parent, the counselor will get into trouble if he rushes off to the teacher or parent to tell them what the student said. Even if the complaint is justified, nothing will be gained by carrying tales from the student. If the complaint is not justified, the interviewer must tactfully find out the facts preparatory to changing the student's attitude of persecution.

13. In making a transition from one subject or topic to another in the interview, make sure the student follows the transition and also moves along to the next topic. It is important that the student follow the trend of the interview, but he can only do this if the interviewer develops new ideas in a manner that the student can follow.

14. Beware of the student who discusses his problems freely and who comes back periodically for a good heart-to-heart talk but who, between interviews, does nothing to help himself and does not follow out suggestions. Such cases can seldom be helped.

15. Do not avoid talking about what a student thinks his problem is, but do not confine the interview to that topic if the evidence indicates that another problem exists. Sometimes the first interview can be confined to discussing the student's stated problem, with later interviews used for discussion of other problems.

16. Do not give isolated test scores to the student. It is quite likely that even the counselor at first understands only vaguely the meaning and interpretation of test scores, even though he may have been exposed to the elements of statistical methods and test procedures. How much less likely

it is, therefore, that the student, lacking as he does the counselor's experience, will understand and interpret the test information wisely. If he wants to know his test results, tell him his approximate rank, saying he is in the upper one-third or upper one-fourth or lower one-fifth. But even in making a statement of this kind, be sure to describe also the group with which he was compared.

For example, tell him that he is in the upper half of this group of high-school seniors on a measure of ability but that this rank would place him in the lower half of students entering a near-by university. Be very careful not to give out I. Q.'s (which are generally misunderstood by the public), or specific grades or percentiles on aptitude or interest tests. And by all means *do not give out scores on personality tests.* This mistake is very serious and frequently results in parental interference and indignation. Any rapport which has been established may easily be lost.

17. Avoid by all means giving advice that is too general or too vague to result in a good outcome. Keep suggestions as specific and concrete as possible or they will not help the student.

18. Be able to lay out alternative vocational or educational plans for the student. Many books on guidance insist that the counselor must not *tell* the student what to do. While such a generalization seems unsound since it emasculates most of the purpose of data collecting and since it would be of no assistance to a student who needs help in making a decision, it is still true that the student who chooses one from among several suggested plans of action will feel a more active participation in planning with the counselor. If the interviewer is unable to suggest alternative vocational plans, he should try to get the student to suggest them, to be criticized in the light of other evidence. Whenever possible, however, it is best to work out several alternatives with the student so he may think them over and make a suitable choice.

19. Do not forget to summarize or have the student summarize what occurred in the interview before he leaves. Much is said in an interview which lasts half-an-hour to an hour. Don't say: "Talk to somebody about this" or "read up on this field some place" or "don't worry" or "you ought to study harder." Tell the student what to read, who to see, what to do to keep from worrying, and how to study harder. Unless the interviewer and the student summarize that material together, it will be an unmeaningful or incorrectly emphasized or misinterpreted mass of words.

20. Learn how to end an interview. Think of standing at the door trying to figure out how to end the departing guest's farewell and thanks for a pleasant evening. Think of being cornered by a talkative and enthusiastic salesman. These examples give some idea of how the student feels and how the counselor might feel when the interview drags out far beyond a reasonable length of time. There are many polite and tactful ways of ending an interview, but it takes considerable practice. It is important to learn how to end the interview, however, not only from the standpoint of the efficiency of the interview schedule, but also because the amount of good that can be accomplished in a single interview is limited, regardless of added time.

21. In the majority of cases, an interview should end with a careful plan of action for the student to follow. This is an adaptation of the basic principle of learning by doing, and it prepares the way for subsequent interviews with the same student in order to carry on the treatment of his problems. This general rule presupposes that relatively few student problems can be cleared up in simply one interview. It cannot be emphasized too strongly that clinical work with students requires not only a willingness to collect data but also a willingness and ability to interview students frequently and regularly.

Importance of Interview Records

There is one other basic problem in counseling or interviewing to which relatively little attention is paid. This deals with the problem of case notes and interview records. However skillfully one may interview a student, the sheer memory falsification and memory loss to which everyone is subject may make the interview useless unless it is immediately recorded or summarized in some way. Therefore, it is essential that the interviewer be aware of the importance of keeping case notes and interview records. These notes and records serve at least six purposes.

1. Case notes and interview records serve as the jumping-off point for later interviews with the same student. From the case notes of the first interview, it is easy to refresh one's memory on what things were discussed, what plans were made, and what problems were brought out in the open.

2. Case notes are useful to give the background of the case to another counselor who, for any reason, has to take over work with that student. By carefully reviewing these notes, the second counselor can find out what his predecessor accomplished, what his impressions of the student were, and what plans of action the student was to pursue. When the student is being

referred to another guidance worker or agency, the first counselor can take from his case notes the material of importance to the other guidance worker or agency and transmit it in writing.

3. The sheer act of writing a complete record of what went on in the interview is an invaluable step in counselor training. In preparing case records, a counselor may suddenly wonder why he failed to discuss a given point and therefore change some of his original inferences about the case. He may discover glaring omissions in the content of the interview. He may see new solutions for discussion in the next interview.

4. In working in a school where one staff member supervises the counseling and in-service training program of other staff members, periodic reviews of carefully kept interview notes tell what was done, what was overlooked, and how the interview was carried on.

5. Another purpose of case notes is one of protection of the counselor. Students and parents alike quite frequently misunderstand or misinterpret the information they have received in an interview, particularly if this information deals with psychological test scores or touchy personal adjustment problems. In many instances, in the process of giving the student bad news, as we have defined it, a counselor encounters resistance to his suggestions. These suggestions may then be misinterpreted and the counselor finds himself being badly misquoted. To prevent situations of this kind, case notes and interview records provide the only protection that a counselor has. And there will always be times when such protection is necessary.

6. The last purpose of case notes and interview records is to permit research to be done on the frequency of student problems, the techniques of value in helping students, and the effectiveness of the total counseling program.

It is impossible to pre-plan every step of an interview. It is equally impossible to write down accurately everything that transpired in its proper chronological order in the ordinary interview lasting a half hour or longer. Adequate proof of this statement is found by comparing case records written after the interview with phonographic recordings of the interview as it took place. Furthermore, it is unnecessary to attempt to recapture all that occurred in the interview since much of it is not related to the solution or the diagnosis of the case.

But interview records may have a structure of their own which will increase their value and make them uniform and easy to understand in their

broad outline form. First of all, the case notes must be accurate so that the counselor does not have to depend on his memory. The case notes must be brief and to the point even at the risk of poor grammar or diction. Case notes are not novels or literary gems. The case notes should not include a host of material that has nothing to do with what happened in the interview. The case notes need to have sub-headings, side-headings, short paragraphs, and a similar structure for all interviews if they are to be easily used for reference purposes.

The following example will illustrate a form of case note which may be used on mimeographed sheets with the underlined sub-headings and side-headings already mimeographed to save writing time.

. . . . . .

Name: Tom Jones *Grade:* 11
Age: 17
Date: May 2, 1942

Reason for Interview: Tom came in to plan his program for his senior year. He does not know what to take since he is not sure what his vocational plans will be.

Analysis of Case

General Ability: One test of scholastic ability indicates that Tom is somewhat above the average for his grade.

Achievement: Grades so far are slightly better than C average for the 9th, 10th, and 11th grades. Standard achievement tests, however, show that he is poorer than our average in science and mathematics with better than average English and social science test scores. He has had no work experience except a newspaper route. He has held no class offices but he has worked on the school newspaper.

Special Aptitudes and Disabilities: We have no information about his aptitudes or disabilities.

Occupational Interests: He claims to be interested in engineering, business executive work, or flying an airplane. On interest test, he shows skilled trades interest primarily.

Personality Characteristics: He shows no "bad" scores on personality test. There are no favorable or unfavorable reports from his teachers.

Physical Status: The school health examination is completely negative.

Socioeconomic Background: The father is a carpenter and has completed the 9th grade. The mother did not work before marriage; has completed the 10th grade. There is an older brother who graduated from high school and who is working as a clerk.

Diagnosis of Case

There are no major problems in this case. While Tom is somewhat above the average of the 11th grade, he does not look like a good college risk. The achievement test weakness in science and mathematics may indicate that he has been over-graded in these high-school subjects. They certainly do not indicate a very good chance for success in engineering. There is a discrepancy between his claimed interests in engineering or business, and his measured interests in the skilled trades field. There seem to be no personality problems or health problems or family problems.

Prognosis

In the light of my discussion with Tom today, I predict he will get through his senior year in high school all right. I do not think he will succeed in college but I think he will accept the alternative vocational plan we were discussing today.

Counseling or Treatment

I discussed the choice of courses that Tom could take next year and suggested that he try out in one or two of the commercial courses, omitting more science or mathematics from his program. I talked to him about the high levels of ability or achievement in science and mathematics required for success in engineering and went on to discuss the training program offered by N. Y. A. for national defense industries. I have asked him to look into this more carefully and report back to me. At that time we will make final plans for his senior year in the light of his decision about his further vocational plans.

. . . . . .

Notice that these case records are not too difficult to be written out in longhand. Notice something even more important: They are very careful to include evidence on *absence* of problems as well as on *presence* of problems. This evidence is one of the most important aspects of case records.

Everyone has a tendency to write down only those things on which he has direct evidence and in so doing, neglects to put down certain aspects of the student's life where no evidences of maladjustment could be found. If a counselor can realize the importance of recording *absence* of judgment-making data and *absence* of maladjustments, he is well on the way to having good case history material.

Now, if the sheer act of writing out case notes seems too difficult for a teacher already burdened with other details, it is possible to mimeograph check lists of student problems which can be checked for both presence and absence in each case. The last chapter lists typical problems which might be included in such a check list. It would then be possible to mimeograph a check list of things done for the student, such as discussing his strong and weak points, referring him to sources of occupational information, planning classroom or outside of classroom tryouts, sending him to another specialist, arranging to talk to parents, and so on. The list might be drawn up from the general discussions and guideposts in this chapter. Check lists of this kind reduce the amount of actual hand writing labor to a minimum. It is still necessary, however, to do some actual hand writing in building up a case history based on a series of counseling interviews, and therefore the mimeographed forms should have lined spaces for notes covering a series of interviews.

Selected Bibliography

1. Bell, H. M. *The Theory and Practice of Personal Counseling.* Stanford University Press, California, 1939. 167 pp. Price: $1.25. (t) (*)

   A revision of the author's earlier excellent reference on making and using a personality test in counseling. Simple, clear examples of problem types.

2. Bingham, W. V. and Moore, B. V. *How to Interview.* Harper and Brothers, New York, 1931. 308 pp. Price: $3.00.

   Practical suggestions for various types of interviews. Should be used after some practice in interviewing in accordance with the suggestions in Chapter 7.

3. *Review of Educational Research—Pupil Personnel, Guidance, and Counseling.* American Educational Research Association, 1201 Sixteenth Street, N.W., Washington, D. C. Vol. XII, No. 1, February, 1942. Price: $1.00.

   The most recent and up-to-date bibliography and discussion of the entire field of guidance. Excellent source of information.

4. Rogers, C. R. *The Clinical Treatment of the Problem Child.* Houghton Mifflin Company, New York, 1939. 393 pp. Price: $3.00. (t)

   A technical and readable discussion of practical ways of helping children. Requires psychological background. Discusses diagnosis, changes in environment and changes in the individual as phases of preventive and curative work.

5. Williamson, F. G. *How to Counsel Students.* McGraw-Hill Book Company, New York, 1939. 562 pp. Price: $3.75. (t) (*)

   The most complete treatment of the causes, frequency, symptoms, cures, and preventions of student problems. Deals primarily with college students but is adaptable to junior and senior high-school classes. Demands technical background and clinical experience for greatest understanding.

CHAPTER 8. *The Case History of a Community*

Guidance workers or student personnel workers have many of the faults and virtues of a missionary. Usually one person or a small group of people get the urge to "do something" about the problems of young people. They often find many youth-serving agencies already in operation and many sympathetic listeners. But the momentum of their enthusiasm may slow down in the face of financial, technical, or traditional limitations.

It is quite likely that community-wide co-operation within relatively small geographic limits is the most effective attack on the youth problem. In such a program, local strengths can be used, and local leadership can command continuing co-operation. Furthermore, a pooling of many small financial contributions can result in sufficiently large financial backing to make the program work. Five years ago—in September, 1938—the author was invited to speak before a group of county principals and teachers in North Dakota on the problems of guidance and counseling. The case history of the guidance program that followed is an illuminating example of community support and community effort.

Background

North Dakota is a sparsely settled, primarily agricultural state, having only nine cities with a population of more than 5,000. Cass County, with a population of 52,000 on the eastern border of the state in the fertile Red

River Valley, is one of the most prosperous of all the counties. Fargo, the county seat and the largest city in the state, has a population of 32,000. It is one of the main distributing centers for agricultural products and a large retail trade center. Throughout Cass County there are 22 four-year high schools with a total enrollment of about 2,300 students. Of these students, Fargo Central High School includes about half the student population, which leaves an average enrollment of about 50 in each of the other high schools. Each year the graduating classes in the county turn into the community about 450 to 500 seniors and the Fargo Central High School graduates more than half of this group.

On file in the city branch of the State and Federal Employment Office there were between 1,000 and 1,500 young workers for whom placement was difficult, if not impossible, either because they had no work experience to satisfy employers' demands, or because limited placement opportunities were available in a relatively narrow band of occupations.

In addition to the guidance and adjustment problems of youth in school and youth applying for jobs, other community agencies were trying to help young people. The N. Y. A. program for out-of-school youth attempted to provide limited work experience of value to the individual. But without knowing the individual potentialities, the work experiences so provided were not always suitable. In other instances, recreational programs through the Y. M. C. A. and similar organizations were available but were not always used by the young people whose social adjustment would be improved by the program, either because of financial limitations or because the very shyness at the heart of the social adjustment problem prevented the young person from making the contact by himself.

It would be difficult for any one agency in a community so defined to maintain extensive and technically competent guidance activities; so the stage was automatically set for some type of co-operative program. The community was progressive and proud of an already excellent record of community participation in the United States Office of Education Adult Forum Project and a community health demonstration project tried out experimentally several years before under the auspices of the Commonwealth Foundation. Therefore, not only were the community resources such that community co-operation was essential but also members of the community in all walks of life had previously engaged in co-operative enterprise for improvement of community conditions.

Development

In August, 1937, an informal group called the Fargo-Moorhead Vocational Guidance Association planned a series of occupational information programs for young people in the community. The entire emphasis in the meetings was placed on supplying occupational information only, without attempting to relate this information to the individual capacities and interests of the young people involved. The County Superintendent of Schools in subsequent months became further interested in the possibilities of guidance work, and in September, 1938, arranged for the author to discuss guidance programs at a meeting of county school men and other interested individuals. The discussion followed the lines described in the earlier chapters of this book.

This discussion evoked enough comment so that the Superintendent was willing to undertake a demonstration program for experimental purposes. One hundred high-school seniors and juniors predominantly from the county high schools were given a group test battery which included Strong's Vocational Interest Blank, the American Council on Education Psychological Examination, the Iowa English Placement Test, the Bell Adjustment Inventory, and the Minnesota Vocational Test for Clerical Workers. Admittedly, this battery did not tap all the potentialities of the young people, but on the other hand it was a more extensive assay than had previously been taken and it was the most effective battery within time and money limitations.

With appropriate revision in norms it could be safely assumed that the individual tests were applicable to the population in Cass County. It was then necessary to demonstrate that individual counseling interviews following upon testing could be adapted to the resources, the types of problems, and the economic limitations of the individual students.

The author visited Fargo periodically once a month for two to three days to carry on counseling interviews with the young people who had been tested. The students' enthusiasm for the service was the first outstanding result of these interviews. In individual cases placement resulted from test evidence, where placement on the basis of experience would have been impossible, and in other cases practical educational plans were mapped out to increase the student's possibilities of successful placement. In still other cases, community resources were marshalled for the solution of personal problems, and curricular modifications were suggested to school men as another technique for helping the young person.

Throughout this phase of the development of the program, interested community members attended lectures and demonstrations on the problems and techniques of guidance. The principal of the Fargo Central High School asked to have some of his seniors included in the testing and counseling and this was done.

Two loosely organized committees were set up with two purposes: one, to broaden the base of the demonstration project by arranging to finance a testing program in the spring for all graduating seniors in the county; and two, to find ways and means of making a community guidance project a permanent activity.

In the spring of 1939, all graduating high-school seniors were tested with the same battery already described and with the addition of the Revised Paper Form Board as a judgment-making device for those mechanical activities in which many of the students would eventually make their living.

Financing the Program

Out of the meetings of the organization committee there evolved a plan whereby the superintendent of the city schools, the superintendent of the county schools, and the North Dakota Agricultural College undertook the first financing of a permanent guidance center. The superintendent of schools in the city not only housed the project but also persuaded the school board to invest a sum of money in the work. The superintendent of schools in the county persuaded the county commissioners to allot money to the guidance center even in a period of drastic scaling down of allotments from tax money. The president of the college set aside a sum of money for the work and permitted the consulting services of his technical personnel officer to be used. Since the college draws about 40 per cent of its entering class from Cass County, the president of the college felt he had a stake in any program for more effective guidance.

Funds from these sources in addition to workers assigned by the National Youth Administration program permitted the employment of a full-time counselor who spent the summer interviewing a large number of the high-school seniors tested in the spring. These interviews were carried on with those young people who did not plan to go on to the college and in cases where the student did plan to go on, the test data were forwarded to the personnel officer of the college.

Community Participation

By the end of the summer of 1939 the community support for guidance had grown and crystallized. It was felt that upon the basis of past experience with the testing and counseling of youth in the county a permanent organization should be established. At a meeting of representatives of all the youth-servicing agencies in the county, as well as representatives of service clubs and other interested organizations, it was decided to establish a permanent community guidance center and to select an executive board to control its activities and to develop a guidance program. The membership of this board was composed of the following: Fargo superintendent of schools; two members of the Fargo board of education; county superintendent of schools; personnel director of North Dakota Agricultural College; one representative from each of the following—County School Officers' Association, County Welfare Board, Community Welfare Association; and one member from the community at large elected by the other members of the board. Accordingly, a board of directors was elected and became the administrators and legal entity of the proposed guidance center.

After the board of directors organized and elected the usual officers, a director of the community guidance center was selected. His training in statistics, tests and measurement, and clinical work provided the technical direction which many community programs lack. A regular meeting was scheduled for the second Thursday in each month. The board was also divided into three standing committees which considered each problem with the director before it was brought before the entire board. This proved to be a valuable timesaver, inasmuch as many of the details were settled and recommendations prepared without using the time of the entire board. The administrative committee considered and reported to the board on problems of administration, personnel, publicity, and public relations. The technical committee recommended the tests to be used, techniques to be employed, methods of referral, office forms and reports, and reports to other agencies. The finance committee planned financial support for the center, set fees, determined salaries, and approved expenditures.

To provide continuous community participation, an advisory council composed of one representative from each of twenty-three agencies in the community dealing with youth programs was established. This advisory council had the task of making recommendations regarding the service of the guidance center and keeping up the interest of the agencies in the work of the center. They

held periodic meetings and heard the reports of the board of directors. The advisory council served as a clearing house of information regarding youth. At times they were requested to furnish specific data on individual youth who had gone to several of the agencies.

Frequently, they discussed ways of making effective solutions of special case problems by co-ordinated effort in harmony with recommendations based on the findings of the guidance center. The individual agencies agreed to accept referral of cases from the center when it was determined that the nature of their particular organization and its services would enable them to deal most effectively with the case in question. This program facilitated the movement of cases to and from the guidance center as well as from agency to agency, insuring the maximum benefit to the youth involved.

Relations with Young People in the Community

To encourage the participation of young people in solving their own problems, representatives of the high schools in the county were asked to establish a youth council, whose members would automatically retire at the age 21. The response to this request was immediate and enthusiastic. The youth council undertook two projects, the first of which involved indexing for use of young people the available community resources and agencies in the county. The second project involved a follow-up questionnaire study of the county graduates of the class of 1933. Two members of the youth advisory council were elected to the senior advisory council for the community guidance center to make suggestions to the senior group on improving service to youth from the standpoint of youth themselves.

Technical Supervision and Methods

The functions of the director of the community guidance center were to administer all its guidance activities, which included the testing and counseling of individuals, instituting and maintaining proper records, conducting research, maintaining public relations, and providing other informational and educational services of a guidance nature. The director of the guidance center had available in his office a wide range of group and individual tests. From them a basic battery was selected and given to all high-school seniors. The tests included in this battery were: American Council on Education Psychological Examination, Cooperative English Achievement, Bell Adjustment Inventory, and Strong's Vocational Interest Blank. Additional tests

were selected to supplement this basic battery in individual cases where additional test evidence was deemed necessary.

The director of the guidance center was empowered to travel to county high-school centers for testing and counseling purposes where such travel simplified the process for the student. The board of directors established a scale of fees for individual diagnostic services because of limited financial resources of the center. Any student or case referred by a contributing agency was handled free of charge. Any case referred by a co-operating agency holding membership on the advisory council was handled for a charge of $2.50. So that guidance would be available to the entire community, any private individual not covered by these categories, received the service for $7.50. Furthermore, any local school board in the county was regarded as a contributing agency by payment of a fee of $1.25 per student tested and counseled in their school.

In working with any one individual case, a preliminary interview was followed by three to eight hours of testing, and this, in turn, was followed by one or more counseling interviews, after which a report was sent to the appropriate community agency whose resources would help solve the problem. The work report for the month of November, 1939, was typical of the early stages of the project: 141 cases were given 728 tests and 100 interviews were completed in that month, with 85 typewritten reports on individual cases sent to the referring agencies.

In addition to individual diagnostic services, the director of the community guidance center maintained a speaking schedule for the purpose of continued community support and publicity. He maintained as well a traveling library of occupational information available from published sources such as the *Vocational Guide* and from the United States Office of Education. As a third service, he abstracted and collated current information about new occupations and distributed this in mimeographed form.

The operation of the community guidance center played an important rôle in the locality in which it was established. It made a definite contribution to the individual youth served. It developed a community consciousness of the need and importance of guidance, and as an educational medium, contributed materially to the growth and stature of guidance throughout the state as its activities became more widely known. It served to emphasize the point that it is far easier to help individuals if the areas in which help is needed are better known and the resources of assistance are known and

coordinated. Finally, as a successful demonstration unit, the community guidance service demonstrated the feasibility of a guidance program in a predominantly agricultural community. It served as a laboratory for the development of techniques and procedures which could be adapted to a state-wide program.

Broadening the Service

Early in the development of the program, requests came from many sections of the state for an extension of the services of the community guidance center. The state supervisor of home economics education in her travels throughout the state became impressed with the need of guidance service on a state-wide basis, and suggested to the board of directors and the director of the community guidance center, the possibility of obtaining federal support for a state-wide program. Subsequent investigations by the director of the center further indicated that such aid might be available. The state director of vocational education, and the other divisional heads of the Smith-Hughes and George-Deen Acts within the state, became interested in the project and co-operated with the director of the center in drafting an amendment to the existing state plan whereby federal funds from these two acts could be matched with local funds that were available to expand the guidance services in the state.

Under the interpretation of the United States Office of Education, Smith-Hughes and George-Deen funds can be used to establish a state division of occupational information and guidance. This had already been done in the State of Maryland, as one example, and the North Dakota amendment to the state plan was modeled in part on the Maryland structure. This amendment was approved by the state board of vocational education and the United States Office of Education, and became effective July 1, 1940. The plan as approved provides that 40 per cent of the cost of maintaining a state occupational information and guidance service is borne by the federal government. The following introductory statement, quoted from the state plan, sets forth the need and the functional purpose of a division of occupational information and guidance:

> "Properly selected pupils are among the prime essentials of efficient vocational schools and classes.
>
> "The selective process, to avoid waste of vocational education funds, should take place before the pupil enters upon vocational training. It follows that the pupil must make his choice on a basis of information

about his own interests and abilities, and about wages, working conditions, and possibilities of continuous employment, acquired before the critical moment of his choice of specific training for an occupation.

"Enrolling officials in vocational schools can likewise function efficiently only if they also possess similar knowledge of occupational information and pupil inventory before acceding to, or directing the enrollment of a pupil for specific training.

"The vocational school, itself will, in turn, continuously utilize related kinds of information during the process of training, placing, and following up its pupils. In addition many other persons in school and out will defer or change their decisions with regard to their occupations. Further problems in occupational information and guidance are presented by this group.

"From these premises, it follows that 'providing for the further development of vocational education in the several states and territories,' to quote from the opening sentence of the George-Deen Act, requires first, the improvement of the ability of teacher counselors, both in schools from which vocational classes draw their pupils, and in vocational schools themselves, to secure and use facts about occupations, and facts of occupational significance about their pupils; and second, the improvement of these teacher counselors in the use of the necessary techniques in applying these facts to the wise counsel and guidance of pupils."

Quoting further from the state plan, the following duties of the state supervisor of occupational information and guidance clearly indicate the scope and nature of the state guidance program, and indicate the general objectives toward which the program is pointed:

"Studies and investigations:

1. He shall study employment conditions in the state as a guide to occupational information.
2. He shall survey the school facilities of the various communities to ascertain the best means for establishing programs of occupational information and guidance suited to the individual communities.
3. He shall prepare plans, programs of guidance, and literature on studies, surveys, and investigations in the field of occupational information and guidance.
4. He shall ascertain and recommend such equipment, library materials, and other supplementary supplies and facilities as will be needed to make a program of occupational information and guidance effective in the several school units.

5. He shall promote throughout the state follow-up studies of graduates and former students in secondary schools and particularly all vocational schools and classes in order to reveal from the experiences of such school-leavers better ways of serving the individuals in the schools and of adjusting school programs to individual needs, both in wage-earning and non-wage-earning occupations.

"Promotion:

1. He shall counsel with school authorities, such as superintendents, principals, and supervisors, desiring information regarding establishment of programs of occupational information and guidance and he shall aid in the organization of such programs as have been approved by local school authorities.
2. He shall make a special study of the needs of rural and semi-rural school units with relation to occupational information and guidance, with a view to promoting a program suitable to these needs. He shall investigate the possibilities of cooperative effort in providing personnel, equipment, and occupational information and guidance programs in rural school units, which because of small enrollment or other reasons, may be unable to provide complete programs for themselves.
3. He shall promote training of teacher counselors in occupational information and guidance, and advise with teacher trainers on all matters pertaining to the improvement of the program in the state.
4. He shall aid in the development of the program by making his services as a speaker available through civic groups, parent-teacher organizations, teachers' meetings and conferences, and similar groups, setting forth the basic principles of a sound and effective program of occupational information and guidance.
5. In the promotion of occupational information and guidance programs, he shall work in close cooperation with existing agencies, public and private, which contribute to the advancement of the various objectives of the program.

"Supervision:

1. He shall have general supervision of the occupational information and guidance programs in public schools of secondary grade in the state.
2. He shall study means of improving the professional preparation of teacher-counselors or other persons who are designated in individual schools to carry on programs of guidance. He shall promote means

of in-service training of teachers and counselors, as well as the work of teacher-training institutions in guidance.

3. He shall conduct, in cooperation with local authorities, group conferences and meetings for the purpose of improving local programs of occupational information and guidance.
4. He shall devote a considerable portion of his time to making supervisory visits with the various teacher-counselors in order to improve the work of teacher-counselors in service.
5. He shall cooperate with teacher-training institutions in their efforts to prepare teacher-counselors and to improve counselors in service.
6. He shall cooperate with the various supervisors, coordinators, and teachers of vocational education in the State and in local communities to make the benefits of a guidance program available to vocational schools and classes.

"Records and reports:

1. He shall prepare in advance an agenda or program of each year's work and present it to the Director of Vocational Education.
2. He shall be responsible for all reports and records for local programs as required by the State Board for Vocational Education, and shall report to the State Director of Vocational Education.
3. He shall report all findings to the State Director of Vocational Education and in addition he shall make an annual report."

The director of the community guidance center was selected by the state board of vocational education as state supervisor of occupational information and guidance, thus knitting closely the state service to the existing community guidance center. The state board also appointed a state advisory council. The state office was housed jointly with the community guidance center in quarters provided by the Fargo Board of Education. Inasmuch as the state legislature was not in session, the funds of the community guidance center were matched with federal funds to provide financial support for both the state service and the guidance center, which now served as a demonstration guidance unit for the state as a whole.

Previous to the establishment of the state service, any guidance programs which may have developed within the schools of the state depended entirely upon the interest and initiative of the various school leaders themselves. Before a state program could operate effectively, it was deemed necessary to determine by means of a survey the extent and practices of guidance functions throughout the state. Table 15 below indicates a sampling of the guidance

services maintained by the high schools in North Dakota. Column 1 indicates the type of guidance service or function offered; column 2, the number of schools reporting the practice of such service or activity, and column 3, the percentage of the total schools of the state reporting.

This table is certainly indicative of the lack of guidance practices then existing in North Dakota. It must also be noted that the figures given in Table 15 in no way indicate the quality of the various practices listed. Certainly in many cases, although the guidance function is claimed, much additional work would be necessary to bring it to a level of minimum efficiency. The scope of the efforts required would necessitate a much larger

TABLE 15

GUIDANCE SERVICES OF NORTH DAKOTA HIGH SCHOOLS

Guidance Service	Number of Schools Reporting the Service or Activity	Per Cent of Total Reporting
Maintain cumulative records	39	24
Offer individual counseling service	67	41
Maintain a vocational file of pamphlets and clippings	37	23
Maintain a vocational shelf in library	64	39
Give standardized tests	61	37
Offer classes in occupations	81	50
Practice follow-up of graduates	50	31
Contact and check drop-outs	47	29
Maintain school placement service	13	8
Co-operate with Public Employment Service	15	9
Hold group guidance classes	35	21

staff and outlay than was available. An additional factor to be considered was the wide scattering of the some 600 secondary schools. Therefore, the state advisory council of the occupational information and guidance service and the state supervisor decided that the most feasible approach to establishing a guidance service in the state was to concentrate the greater part of the effort in one county as a demonstration unit, and to develop techniques, principles, and procedures in that center which would point the way toward a complete state program. Thus the community guidance center became the demonstration unit for the new state service. Efforts outside the demonstration center were largely confined to distribution of informational materials,

and laying groundwork for future expansion of guidance services by developing a consciousness of the need for guidance and the benefits that would accrue from the establishment of such a program.

It is of interest to trace the progress of the community guidance center as it served as a demonstration project for the state. Prior to this time, the center assumed the entire responsibility for providing a co-ordinated guidance service for each co-operating school, based upon methods of clinical analysis and individual counseling of each case described in these pages. A change in this emphasis was made necessary because financial limitations and lack of personnel would not permit development of any extensive state program if the individual testing and counseling load of all schools were to be borne by the state supervisor at the local demonstration center. Accordingly, the community guidance center attempted only to reinforce the local guidance program by carrying on in-service training of teacher-counselors so that the local schools would tend to become more and more self-sufficient.

Material taken from the director's report of the center's activities will serve to illustrate the procedure used in co-operating schools. In the schools of Cass County, students were given a battery of vocational aptitude tests, and instruction on the basic principles of counseling was given to a member of each local faculty. The first step in the instruction was to lay a groundwork of the techniques of counseling, and general procedures in interpretation of case material. The next step was to take representative cases that had not yet been counseled and to go over them thoroughly, identifying crucial points upon which decisions might be based.

This step was followed by a demonstration interview conducted by the trainer. No completely satisfactory system has been devised for observation of a counseling interview whereby complete rapport can be guaranteed. Use of screens has been but partially satisfactory and sound systems are not available in the ordinary secondary school. Holding a 3-way interview with the trainer, trainee, and counselee present proved to be the most satisfactory method. In following this system, it was necessary to pre-select the type of student from whom maximum co-operation might be expected under the circumstances. Although the trainee was present and participated in the interview, the trainer guided the conversation so that the problems presented by the student were discussed in the approved manner. At the end of the interview, the trainee wrote the case notes under the direction of the trainer.

An attempt was made to have the irrelevant material culled out and only

such record made as would give meaning to test scores and interview data. From this viewpoint, case notes were regarded as functional rather than a complete reproduction of the interview. After this preliminary training, the trainee proceeded to counsel his own student cases, followed by a critical analysis by the trainer of his techniques and case records with suggestions for improvement. This system of training in-service counselors in the smaller secondary schools has proved to be a most satisfactory method.

The training of individuals to counsel students in their schools necessitated the transfer of case records from the central files of the community guidance center to the respective local schools. The co-operating schools varied somewhat in the nature and extent of school records. The policy of the guidance center was not to insist upon uniform records, but upon a record system that was complete and well-adapted to the needs of the individual school. In some schools, individual cumulative records were begun for all students in the entire school system. In three of the co-operating schools, the cumulative record systems already found to be in use were supplemented or revised. The quality and extent of the records instituted and maintained by the local school systems was in a large measure dictated by the local financial resources and personnel available. In the Fargo city school system, it was possible to institute a much more complete record system than in many of the county schools.

Here it was found, after considerable research and experimentation over a period of time with several record systems, that a folder system with mimeographed inserts was preferable from the standpoint of utility and permanence to a system of printing the record directly on the folder. The system developed provided for five inserts, $8\frac{1}{2} \times 11$ inches, each of which contained information in one of the following areas: socioeconomic history and status, scholastic record from grade one through high school, health record, test information, and a record of case notes and teacher observations. The development of this system was stimulated not only by the demand for an adequate record system for guidance purposes, but also by a comprehensive achievement testing program conducted throughout the city school system which revealed the inadequacies of existing record forms.

The Program of the City School

The following paragraphs will describe in some detail the guidance system developed in the Central High School of Fargo. Much more experimentation

was possible in a larger school system of this type where materials and finances are more readily available. Certain principles and techniques were worked out which contributed much to available data supporting the policies to be followed in developing practices for the smaller schools and for the state at large.

The counseling system in the Fargo high school consists of twelve teachers, each of whom is released from one hour of teaching time a day and has the responsibility for approximately a hundred students. These teacher-counselors were responsible for the scholastic endeavor of all students under their supervision, and for their satisfactory educational guidance. The teachers were carefully selected with regard to interest in guidance work, ability to deal with students tactfully, and educational background and preparation. They were trained as previously outlined. In addition to periodic meetings with the state supervisor for instruction and training, the teacher-counselors have their own organization which meets to discuss the various problems and techniques related to counseling.

The Fargo high school has a dean of boys and a dean of girls, who in addition to offering group guidance classes, are charged with the responsibility of maintaining discipline. All discipline is administered by these deans so that rapport between students and teacher-counselor is not impaired. However, teacher-counselors assist in the rehabilitation of discipline cases. The work of the teacher-counselor has in the past been supervised by the director of the guidance center, but a larger share of the supervision will be borne in the future by the dean of women as her training and competency increase.

The teacher-counselors initiate one conference with each of their advisees every semester to plan his program for the coming semester and to make a periodic check of his adjustment in school. Any classroom teacher who feels that a student is not working up to capacity fills out a blue slip which indicates the reasons for probable failure. This blue slip is then countersigned by the counselor and sent to the parents asking them to come to the school for an interview. If the counselor desires additional information before signing the slip, he can request the classroom teacher for more complete details on the reasons for failing work, the remedial steps that have been taken, and other pertinent data. At the first signs of scholastic maladjustment, the classroom teacher uses a white slip which is indicative to the counselor of a need for treatment. If the counselor feels after an interview

with the student that it would be helpful to have the parents visit school, he can request the classroom teacher to issue blue slips.

The students' folders described above are placed in a central file where they are accessible to all teachers. If a teacher uses a case folder, her signature is placed on a record card in each folder which indicates the extent the file is utilized and which teachers are most interested in the progress of a particular student. Realizing that counseling was one part of the total guidance program, twelve faculty committees were appointed, each dealing with one phase of the total program. Each of the committees was headed by a chairman who in turn was a member of the general guidance committee. The general committee, composed of the chairman from each subcommittee, met monthly to consider recommendations of each of the 12 committees and to prepare group recommendations to the school administration.

The twelve committees with the functions of each are listed below:

1. *Student and Record Articulation:* To study the articulation of students and records between junior and senior high schools. In the light of the study to make recommendations and draw up a program striving for better articulation. To improve registration procedure and formulate a program for orientation of entering students.
2. *Student Cumulative Records:* To study the cumulative record system, the collecting of information, filing, use of records and forms. To make recommendations for better records and to improve their usefulness.
3. *Testing and Evaluation:* To study the testing needs of the school and to plan a program to meet these needs. To conduct surveys, evaluate, and set up a permanent system of testing. To educate teachers in the proper interpretation of these tests.
4. *Curriculum Research and Revision:* To study the present curriculum and to work for curriculum revision to meet the needs of students. To work for a course of study which will better meet the needs of non-college students as well as college students.
5. *Homeroom System:* To make a study of the purpose, function, and value of the present homeroom system. To evaluate and make recommendations for the necessary reorganization, elimination, or continuation of this system.
6. *Pupil Attendance:* To study the attendance, punctuality, recording procedure, excuses and permits. From this study organize a procedure making for better co-ordination and efficiency.

7. *Student Extracurricular and Social Life:* To study the social and educational club system, student social life, extracurricular activities and the general welfare of the student body. To make changes and suggestions for a program of more wholesome social life.
8. *Youth Guidance Committee:* Through the student council to organize a guidance committee to carry on some guidance functions. To secure co-operation in carrying out guidance plans. To make surveys and through the student school governments help better their own vocational and educational possibilities.
9. *Vocational Aspects:* To make a survey of library and other school facilities. To organize a vocational guidance program by bringing into play and co-ordinating all facilities in the school and the community which may aid students to better select and prepare for an occupation.
10. *College Information:* To make a study and to collect information aiming for better articulation of students to college.
11. *Special Student Problems:* To study conditions and draw up procedures to deal with physically defective children, discipline pupils, and pupils of abnormal intelligence, and various other special pupils.
12. *Teacher In-Service Training:* To devise plans to bring before all teachers the necessary information to make for a well-rounded guidance program, and to interpret the program to the parents and the community.

In order to increase the effectiveness of the guidance program in the Fargo city schools, a close co-operative relationship was worked out with the local branch of the state employment service. The school provides the employment service with the student's scholastic and test record, observations and ratings by three teachers, and a summary of his contacts with the guidance department for all students of the Fargo schools who register at the employment service. This information facilitates placement, and the young people, as a result, have a better chance to identify themselves with occupations which are in keeping with their interests and abilities. In many instances students do not know, or say that they have not heard, of the employment service when they are advised to register. This co-operative enterprise between the school and the employment service will be continued, and an even closer relationship developed as time goes on. As one ultimate goal of all

guidance effort is satisfactory occupational adjustment for each individual so that he may take his proper place in society, no guidance program can overlook the placement phase.

In addition to providing occupational information during individual interviews, it is necessary to disseminate certain occupational information of common significance to larger groups. An open shelf in the library containing books, pamphlets, and magazines on occupations and careers was one method; holding a series of career conferences was also found to be a valuable technique. On three successive Wednesday afternoons, local businessmen and women, and professional as well as non-professional workers, were invited to come to the school and to lead a discussion on their particular field of work.

By running a tally of students' interests before arranging the conferences, a series of 18 meetings was arranged that covered the major fields of interests as indicated by the students. The survey of interests that was made preliminary to the career conferences is in itself indicative of the need of occupational information and guidance. The following article is quoted from the *Cynosure* of Fargo High School of June 6, 1940, and shows the unbalanced distribution of student claimed choices:

> "Citizens would have to get out bowls and scissors and do their own haircutting if the students of Fargo high school were to become the sole inhabitants of a city ten years from now, according to the occupational questionnaire filled out by students recently.
>
> "Although no boys would become barbers if given their choice, the girls would be kept presentable by the nine beauty operators. This is a contrast to a survey taken in a New York high school in which five out of 1000 boys chose barbering.
>
> "Factory workers in this mythical city—both of them—would have a fine time with no manager. One cook would be kept busy serving 29 dieticians, while all workers would either have to employ the services of one of the 66 aviators to ride to work, or else walk, no taxi drivers or chauffeurs being available.
>
> "Since there would be only one politician, the city government would be definitely a dictatorship. There would be five agricultural scientists to give instructions to three farmers, the only representatives of North Dakota's leading occupation.
>
> "Although stenography is one of the best fields available for young men, according to C. P. Froehlich, Director of the Community Guidance

Center, and conductor of the survey, only two Fargo high boys indicated an interest in this field.

"Each of the three orchestra leaders would be allowed three and one-third musicians for his orchestra, while 14 actresses would have to share one leading man. Because of the absence of watchmakers, there would be no convenient method of telling time, and since no tailors for men would be in evidence, the male portion of the population would probably have to wear barrels after a few months of residence in this city.

"Only two boys plan on being statisticians although that is one of the fastest growing occupations today. All the buildings in a town of Fargo high-school students would have to be of wood, as a contractor would be unable to hire a bricklayer.

"Noticeable would be the absence of those in domestic and personal service, which rates fifth from the top in percentage of workers in North Dakota, 750 such workers being employed in Fargo."

State-Wide Promotion

Certain state-wide activities were carried on in addition to the demonstration guidance center which has been described above. These activities, with the exception of those connected with national war training program, were, of necessity, promotional in nature. Basic to the plan of expanding the guidance service in the state, an effort was made to acquaint all schools of the state with the guidance facilities available for their use. Accordingly, circulars were prepared and sent to some 600 high schools throughout the state of North Dakota. Typical circulars were those announcing the establishment of the state service in North Dakota; *A Six-Point Program,* emphasizing the minimum essentials of guidance, and miscellaneous guidance literature and pamphlets received from the United States Office of Education and other sources. A circulating library of occupational information was also made available to schools on request.

The state guidance service provided technical consultation to those schools who requested it. The service presented to the individual schools the principles and functions of a guidance program and how it might be established and offered assistance in setting it up. Several of the schools in the state took advantage of this opportunity and made provision for the state supervisor to visit their school and to initiate a program.

To further the interests of guidance throughout the state, the state supervisor made it a point to attend special meetings and conventions of North

Dakota educators. Whenever possible, speakers from outside the state were also brought in to special meetings. These speakers discussed everything from the technical phases of guidance to frankly inspirational aspects of the program. The state supervisor was invited to appear as the principal speaker at a regular meeting of the Williams County Schoolmasters Club at Grenora. This organization was keenly interested in what might be done in its county to initiate guidance services in its respective schools. A six-point program of minimum essentials of guidance was presented and general recommendations made. It has also been the practice of the state supervisor to discuss the guidance program on invitation before service clubs, educational meetings, and other interested groups. During the first year approximately thirty-five such addresses were given.

In order that the largest possible number of teachers in the state of North Dakota might be trained in the basic concepts of guidance pertinent to the success of the state plan, the state supervisor arranged to rotate his services as instructor in a regular credit course in guidance in a different institution of higher learning each summer.

To evaluate the techniques and progress of the guidance program, research activities and follow-up studies are constantly carried on in the office of the state supervisor. Among the projects completed are: a survey of guidance practices in North Dakota; revision and evaluation of an interest inventory; development of a cumulative record system; and evaluation of comparative scores obtained by rural and city youth on tests administered under the demonstration program.

War-Time Services

With the national emergency and appropriation of funds by the federal government for the training of defense workers, North Dakota made definite provision in its state war plan for use of funds and the employment of personnel for "determining the aptitudes and abilities of trainees for the purpose of developing instructional material and procedures to serve the individual needs of the trainees." Accordingly, the occupational information and guidance service played a definite part in the war program. Its activities in this connection contributed materially to the furtherance of guidance interest and consciousness throughout the state through contacts made with several hundreds of boys representing practically all its geographical areas and communities.

No clearer statement could be made of the nature and procedure of the program instituted than the report of the state supervisor published through the courtesy of the Vocational Guidance Films, Inc., which is quoted below:

"The occupational information and guidance service for North Dakota is charged with the responsibility of providing a guidance program for some 800 boys who are certified by the National Youth Administration for training in national defense classes. These classes are being held in some 20 different centers throughout the state. The training that is now offered to the boys is of an exploratory nature. The basic principles underlying many of the mechanical occupations are being taught in a six months' general shop course. After the youth have completed this general shop course, they will be given specific pre-employment training in some occupation essential to national defense.

"The guidance service is following a four-point plan in aiding these students to make a wise choice of the occupation for which they should prepare. This plan will be presented under four headings: Visual Education, Occupational Instruction, Instructor Ratings, and Counseling Service.

1. Visual Education

"North Dakota is unique in its part in national defense preparation in that it has practically no industries associated with the production of necessary materials and equipment. It is therefore impossible for the boys in defense training classes to visit such industrial plants for first-hand information on actual working conditions surrounding the various defense occupations for which they may prepare. Good guidance practices dictate that occupational information is essential to good occupational choice. It therefore is necessary to give the students as clear a picture of conditions of work in the huge industrial plants as possible, and visual education by means of slides and film strips seemed the most logical answer to the problem.

"The visual education films are presented in two phases, designed to correlate with the instructional material offered on occupational information and guidance. In the first phase, while the student is exploring his own interests and abilities, films are shown on how to choose an occupation, how to apply for and win promotion on a job, and other subjects of a general nature applicable to any vocational choice. In the second phase, the films are of a more specific nature, giving students information on their tentative choices made. Topics were Auto Mechanics, Sheet Metal Work, Metal Trades, Building Trades, Welding, and Machine Shop.

"The importance of visual materials cannot be over-emphasized in instruction. Accurate occupational settings are stimulating and effective in giving a real "feeling" of occupational life. They also make other instructional material more significant, and make more vivid the discussion material presented in the regular classes.

2. Occupational Instruction

"The second point in the four-point guidance program is the preparation of units of instruction on topics essential to wise occupational choice. These units are prepared for instructors as a guide in teaching guidance subject matter a minimum of one hour per week. The units are set up with general and specific aims, lesson materials, topics for class discussion, class exercises, summary, and bibliography.

"The subject matter of the units is also geared to the progress of the student through his exploratory experiences to occupational choice, specific training, and actual employment. Therefore the first units take up subjects relating to the individual, such as need for occupational information, need for guidance, occupations and abilities, discovering abilities, interests, personality and the job, and attitudes.

"Another series of units deals with factors outside the individual such as analyzing the job, job specifications, how to study an occupation, various training resources, and similar topics.

"A third series of units deals with the student's active effort to gain entrance into the field of work. Typical topics are job trends, preparing to apply for a job, making application, holding a job, securing promotion, what the employer expects of his employee, and the value of an avocation.

"A final phase of the instruction deals with employee organizations, and legislation affecting workers. Labor unions, social security, workmen's compensation, and license requirements are some of the topics.

3. Instructor Observation and Ratings

"The third step in the guidance program involves the instructor who has first-hand knowledge of the individual and his reactions to the various experiences he is subjected to in the shop activities. Periodic ratings of his students by the instructor tend to objectify his observations, and furnish the guidance service with additional bases for the selective processes that will follow. In addition to ratings, the instructor is encouraged to extend his remarks on the back of the rating sheets indicating his recommendations for each individual student, the student's greatest problems, interests, and similar information.

4. Counseling

"The fourth and final step in the guidance program is the counseling service. In many respects, the counselor is the co-ordinator of all the materials, ratings, opinions, and observations that are available concerning each student. It is his task to bring all the available facts together and, with the student, interpret them in determining the best possible occupational choice. In addition to the data obtained by the instructor and a report of the student's progress, interest, and achievement in his shop and classwork, the counselor also has test results on general ability, mechanical aptitude, dexterity, and interests. The results of the tests are compared to the instructor's findings and recommendations, and outstanding differences are discussed fully and the cause of each difference is sought. All the information is then pooled, organized, and interpreted in an individual conference with each student to aid him in making a final occupational choice.

"Thus the Occupational Information and Guidance Service in North Dakota is meeting its dual responsibility of devising a selective process to obtain the best possible trainees for industries vital to national defense, and at the same time provide the individual with such information and counsel that will insure him continuous and profitable progress in the occupational life of the nation."

With the sharp increase in the demand for trained mechanics for war industries, a veritable flood of advertisements and agents appeared in North Dakota soliciting students to take private school training for occupations related to defense. An investigation of these schools was made through chambers of commerce, better business bureaus, governmental agencies, contact with former students, and by direct contact with employing firms to learn of their hiring habits with respect to type and quality of training offered by these schools. It was learned that many of the schools charged exorbitant fees, accepted applicants indiscriminately, regardless of qualifications or abilities, and that they made a practice of pressure salesmanship and "guaranteed" employment. The occupational information and guidance service launched a counter-crusade against these schools through the press, service organizations, educators, the state employment service, and by contact with all other agencies dealing with youth. Prospective trainees were also advised of reliable training opportunities within the state in defense classes, and in the state's trade school. It is estimated that thousands of dollars in fees were saved the people of the state by this action.

Legislative Support and the Future

A milestone in the progress of the developing guidance program was reached when the North Dakota Legislative Assembly of 1941 passed an appropriation for the occupational information and guidance service in North Dakota. Thus, the service in North Dakota is in a position to expand its services on ever-increasing bases for the benefit of the entire state.

Inasmuch as the occupational information and guidance service in North Dakota is new and its activities have been quite largely limited to the development of the demonstration center in Fargo and Cass County, contemplated activity for the ensuing years must necessarily first of all involve a continued effort in selling the value of guidance service throughout the state. In addition to increasing the dissemination of occupational information and guidance publications, it is planned to expand the consultation service so that more schools may have the opportunity to receive expert aid and advice in establishing a guidance program. Basic to this service will be an effort to establish adequate record systems throughout the schools of the state. Because of the financial condition of the state, it is impossible to recommend the employment of trained counselors for all schools. It is therefore planned to expand the program of training teacher-counselors to handle the guidance activities.

Patterned after the demonstration program conducted in Fargo and Cass County, plans will include the establishment of several additional demonstration programs so located that they are accessible to all schools of a certain area in the state. As defined by the state advisory board for the occupational information and guidance service, a demonstration center is "a school or group of schools under a single administration that accepts the responsibility for costs and local guidance personnel, and that is willing to conduct its program under the supervision of the state supervisor of occupational information and guidance."

Recently the state department of public instruction announced the following new criterion for accrediting of schools in the state:

> "A fully accredited or a minor accredited school shall include in its educational program an effective guidance service in helping pupils to adjust themselves to the environment of a complex civilization."

This announcement accompanied a request for detailed reports on existing guidance activities in each school, together with an offer of free consulting assistance from the state supervisor of occupational information and guidance.

At the present time, the North Dakota program is no longer a small local experiment. It is a full-fledged, state-wide activity in which guidance is increasingly practiced in every school in every community in the state. Local clinical centers are under way in which testing and counseling techniques are basic to effective guidance. From the central office of the state supervisor comes a constant flow of literature, consulting service, and experience which quickly filters down to students through teachers who are learning guidance skills on the job.

The small beginnings trace back to the experimental testing and counseling program for some hundred seniors in the fall of 1938. The county superintendent of schools squeezed out of an overworked budget the monthly consultation expenses for student interviews. By the fall of 1939 definite financial contributions from the city and county schools and other sources made possible the establishment of a permanent community guidance center with a technically trained director in charge, and with an executive board and supplementary advisory boards representing the community agencies and the youth themselves.

It should be emphasized at this point that the progress of the guidance program thus far was due to demonstrated worth and effectiveness based upon satisfactory results with individual students, and not upon purely theoretical or promotional considerations. Perhaps the most significant accomplishment of the community guidance center to this point was the demonstration of the feasibility of a guidance program in a predominantly agricultural area. Of almost equal significance was the fact that the center served as a laboratory for the development of principles, techniques, and procedures that were adaptable for other communities and for the state program that was to come.

The work of the community guidance center as a demonstration unit led to the amended state plan under the Smith-Hughes and George-Deen Acts. In 1941 the state legislative assembly appropriated state money for an expansion of the work. Three years were required to bring the program to its present state of development—three years of missionary zeal, technical consultations, personality clashes, research, competent but limited service to students, and begging for small but vital items of financial support. Now the main job can begin: teaching more teachers how to help more students by use of testing, counseling, and occupational information services.

Some thirty-seven or thirty-eight states in the United States today are with-

out an occupational information and guidance service; they may well take a page from the North Dakota record and use the community approach as a means of developing a state service. Thus North Dakota may have contributed materially, not only to the growth of guidance on a community or state scale within its own boundaries, but also to the success of this essential youth service to the nation as a whole.

This is only one case history of a community. It has been described at some length because of its extent, its special emphasis on the primary procedures of testing and counseling, and its early financial handicaps. The evolution of many of the most significant guidance programs is not easily to be found in the technical journals or texts, since the guiding spirits behind the programs are usually too busy to publish more than a few brief articles on their work. The bibliography for this chapter lists several sources of information that may be tapped by direct correspondence with the people named. Such an exchange of experiences, methods, costs, and obstacles will be invaluable to readers interested in "next steps." In each case, it is important to notice the *years,* not weeks or months, that elapse before the programs come to their fullest power and value. "Guidance" can't spring into complete existence over night; it can grow into a vital part of the school program if the teachers, administrators, and school boards give it fertile soil in which to grow.

We have come a long way with our students in these pages. They are rather important people, not only today, but also tomorrow, in a world that has several loose ends, to say the least. As teachers we are dedicated to the belief that education can start them well on the road to adulthood. The most effective education is one adapted to their needs and their abilities and interests, not one prescribed by tradition, administrative convenience, or "factory" methods. Testing and counseling and other guidance functions represent a series of skills which can be learned by some teachers as a means of making education do the job we all want it to do in a democracy.

Selected Bibliography

1. Bell, H. M. *Matching Youth and Jobs.* American Council on Education, 744 Jackson Place, Washington, D. C., 1940. 277 pp. Price: $2.00.

Interestingly written account of practical youth-serving programs developed by the American Youth Commission and the Employment Service Division of the Social Security Board. Contains many guides and suggestions for local action.

2. Culbert, J. F. and Smith, H. R. *Counseling Young Workers.* Vocational Service for Juniors, New York, 1939. 212 pp. Price: $1.75.

   A description, with detailed reference to the organization and administrative problems, of an excellent out-of-school service.

3. *Employment Counseling.* State Operations Bulletin No. 10, U. S. Employment Service Division, Washington, D. C.

   A description of what the employment service will try to do for its applicants when teachers refer students, including the type of material the employment service needs from the school guidance program.

4. McCain, J. A. and Brayfield, A. M. *Teacher-Counselor Manual for a High School Guidance Program.* Student Personnel Division, Colorado State College, Fort Collins, Colorado, 1941.

   An excellent example of a college's leadership in the local area, in an effort to make high school people effective guidance workers. The division probably has other mimeographed material available also.

5. North Dakota Occupational Information and Guidance Service, C. P. Froehlich, State Director, Fargo, North Dakota.

   The materials available for distribution range from general guidance plans to specific class room units for job training and job finding. Write directly to the State Director.

6. Palmer, Jane M. *Junior Placement.* Children's Bureau, U. S. Department of Labor, Washington, D. C., 1940. 133 pp. Superintendent of Documents, Washington, D. C. Price: $0.15.

   A survey of junior-placement offices in local employment centers or in public school systems, with descriptions of registration procedures, guidance, placement, follow-up, and special services. Check your local full-time or part-time employment center against these findings.

7. Richmond Consultation Service. *First Annual Report.* 620 East Main Street, Richmond, Virginia.

   A report of the project operated jointly by the State Board of Education and the Virginia State Employment Service, with the co-operation of the National Youth Administration. Another type of local community-wide project, dealing mainly with out-of-school youth. Contains valuable suggestions for community action.

INDEX

INDEX

Note: Author name and test references which appear in this index are taken from the text. See selected bibliography at end of chapter for additional references.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T